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KENTUCKY
MEDICAL JOURNAL

PUBLISHED MONTHLY

BY THE

KENTUCKY STATE MEDICAL ASSOCIATION
INCORPORATED

EDITED BY

ARTHUR T. McCORMACK, M. D., A. B., P. H.

UNDER THE SUPERVISION OF THE COUNCIL

VOLUME XXVI

JANUARY TO DECEMBER, INCLUSIVE, 1928

Exch

LOUISVILLE, KENTUCKY
1928

THE N. Y. ACADEMY OF MEDICINE
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Compiled by L. H. South, M. D.

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KENTUCKY MEDICAL JOURNAL

Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets.

Subscription Price, $5.00
Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., JANUARY, 1928 No. 1

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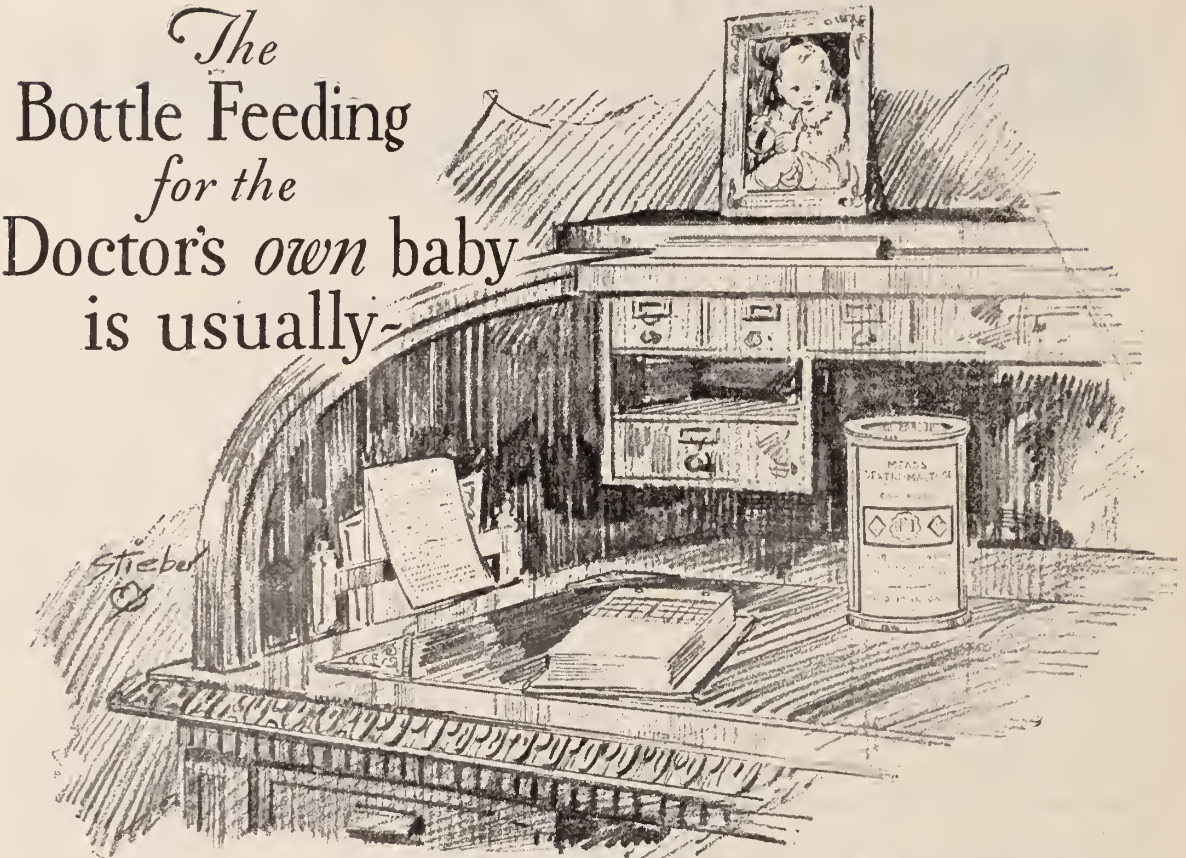

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., JANUARY 1928 No. 1

EDITORIAL

GREETINGS

THE JOURNAL wishes a "Happy New Year" to you, direct, and to every member of your family. We trust this year will bring you much cause for happiness in increased opportunity for service, not only to those who are sick, and therefore need you urgently, but also to the many people of your community who are well and will, therefore, need you no less urgently that they may remain so.

One of the most important movements that has ever been inauguratd really begins with the year 1928. It is sponsored by all the agencies which center in the National Health Council and a real start has been made encouraging the American people to have a physical examination made on their birthdays. The success of this movement depends on you. If you are careful, painstaking and conscientious, it will be a growth that means more to the health of our people and to the ultimate success of our profession as its guardian than any other campaign that ever was started. There will be two classes of examinations that are all wrong. The first is made by the half-baked physician who tells his patients offhand, "I know all about you. You are all right. You don't need any examination. That's all nonsense." The second is made by the superficial doctor who will make more or less of an examination and then go off like an alarm clock and scare his patient over trivial matters without just cause. Fortunately, few of either class are amongst the readers of this JOURNAL, but it is essential to the proper success of a movement of this kind that there be close co-operation in it between the members of the profession in various counties. For this reason, it is important that the matter be discussed at special meetings of county societies. The State Association has arranged for members of the profession who have been especially interested in this movement in various parts of the State to attend county societies to discuss the matter on invitation. The Secretary of the State Medical Association will arrange for addresses on this subject in any county where it is desired. It will be of advantage to have an afternoon meeting of the county medical society and an evening public meeting to which the profession should invite thoughtful men and women of their communities.

It is important that all routine examinations should include a careful study of the teeth and throat. It has been definitely demonstrated that a majority of the most severe infections which cause invalidism and death come from abscesses of the teeth, from the absorption of toxins from dead teeth which have been crowned, and from infected tonsils. Examination of the chest and heart should always be made with the clothing removed. In the examinations of women patients it is particularly recommended that some member of the patient's family should be in attendance, unless the physician has a nurse, or other female attendant in his office, the reasons for which are obvious. Careful vaginal examination should always be made in any woman who has borne children; and should in every case include an examination of the rectum, whether symptoms are referred to it or not. The examination should include the feet, because corns and bunions are relievable and there is no worse source of annoyance. Wassermann specimens should be taken as a routine in every one who is chronically ill. These may be examined in private laboratories, several of the best of which have cards in the JOURNAL, for patients who are able to pay, or they may be sent to the State Health Laboratory at Lexington, where they are examined without cost. In all cases where there is any suspicion of infection, a differential blood count should be made. In Kentucky every patient suffering from chronic illness should have a routine examination for malaria and the intestinal parasites. Containers and directions for taking these specimens may be secured from the State Board of Health in Louisville and these examinations cost nothing. In children there should always be a routine Schick test. Patients who have not been vaccinated for smallpox should have this done as part of the examination. Those who have not already had typhoid fever should be inoculated for this disease.

Typhoid vaccine is furnished free by the State Board of Health to registered physicians. Children, who are found to be non-immunes, should be given the toxin-antitoxin inoculation against diphtheria so that they may be permanently protected from this disease. Conservatism should be the rule in suggesting surgical operation; but this should include the conserving of health. Young people and adults with hernia should be told of the advantages of the radical operation for this miserable conditions that they may be relieved of wearing harness through their lives. Those with infected teeth or with pyorrhea should be referred to competent dentists. Where the tonsils are much enlarged or where they show any sign of infection they should be removed completely. Conditions referable to defects of vision should be carefully studied by a registered oculist or optometrist, with view to the proper fitting of glasses or such study of general conditions as are necessary to correct the defect.

Carefully and skillfully made and sympathetically and definitely explained to the patients, systematic physical examination will do more to promote the public health than any other movement which has ever been undertaken by the medical profession.

THE MEDICAL PRACTICE LAW

The physicians of Kentucky have known for many years of the effective protection given to our people by its medical practice laws. It is important at this particular time that the attention of the public should be drawn to them.

Many of our sister states have what is known as multiple boards of examiners. These are appointed by the various schools or systems of medicine for the examination of their disciples and their purpose is to encourage and protect the particular school of practice to which they belong. The principle upon which they are founded is wrong. The State has but one interest in the individual who treats disease or protects public health and that interest is that he be so trained in the instituion from which he graduated in the fundamental branches of anatomy, physiology, pathology and public health, that he may receive from his knowledge the proper application of the system of therapeutics which he practices. The General Assembly of Kentucky has constantly adhered to this view since 1888 when it provided that the State Board of Health should have control of the examination and registration of those practicing the healing art. Anatomy is the geography of the human system. Physiology treats of the functions of the various organs of the body. Pathology is the science which treats of the changes which disease produces in normal anatomy and physiology. Public health includes all those methods which have been devised for the prevention of disease by the preservation of positive health.

Under the Kentucky law, the State Board of Health conducts the examination of every person, of whatever school or system of practice, before they can legally examine any well or treat any sick individual in the State. This examination is the same for graduates of regular schools of medicine or for those who have been trained as homeopaths, eclectics, osteopaths, optometrists, chiropractors, chiropodists, anesthetists, naturopaths, electrotherapeutists, napropaths, mechanotherapeutists, physiotherapists or those who practice suggestive therapeutics. At the same time that they are examined in these fundamental branches, they are also tested for their knowledge of their system of therapeutics by examiners of their particular school. All examinations are conducted by numbers. After the papers are graded and passed on as result of the examination, the identity of the candidate is disclosed. There is no possibility under the law for discrimination either for or against a candidate of any method of practice. Each "tub stands on its own bottom" and the qualified practitioners are welcome in this State regardless of their school or system of practice. After the candidate has successfully passed his examination he is given a certificate entitling him to practice. This certificate is given on condition that he shall not be an itinerant under any circumstances; and every candidate is required, as a part of the contract upon which his certificate is issued, to sign an agreement that he will not make any advertisement or announcement to the public which is false. As every registered physician is similarly qualified under the law, and is presumed under the decisions of our highest courts to be competent, it is unnecessary for any practitioner to make public claims because no one can truthfully claim to offer better treatment than the other members of the healing profession.

The law provides for the revocation of certificates for the committing of criminal abortion, conviction of a felony, fraud in the application for a certificate or in the examination, for failure to record birth and death certificates, for failure to use the nitrate of silver solution, required by law for the protection of the eyes of newborn babies, for violation of prohibition laws, for chronic inebriety or the use of habit forming drugs, or for other grossly unprofessional conduct of a character likely to deceive or defraud the public.

A number of other states have similar laws, quite a few of them have been copied verbatim from that of Kentucky. In no other state has the law been as effectively and impartially administered. For forty years the late Dr. J. N. McCormack had executive charge of the administration of this law. Every student familiar with the history of the State takes pride in the improved professional conditions that it has brought about. The death rate in Kentucky has been reduced from twenty-eight to ten in a thousand because of the improved qualifications of our medical profession. The life of the average citizen has been extended for fifteen years. No attack on this law has ever been made except by some organized interest which desires to prey on the sick people of the State. No charge has ever been leveled at the administration of the law which has not been shown to be false. In the states having multiple boards all over the country the people are smarting under the exposures through the press that hundreds of incompetent quacks have been licensed by these sectarian boards and have been preying on their people. Outside of Kentucky, the columns of the newspapers are crowded with the advertisement of old doctor this or that who guarantees to cure almost any incurable disease. If those interested will go to the libraries, they will find that before 1888 our papers were similarly disgraced but, since that time, they have been singularly free from these false misleading and dangerous advertisements. The press of Kentucky deserves great credit for assistance in this cleanup. There is still a certain amount of difficulty in the prosecution of offenders against the medical practice law in our courts, because the people have not been made to understand the necessity for its enforcement for their protection. It is a matter of education and if the members of the profession will bring it to the attention not only of their editors but also of the circuit judges, commonwealth and county attorneys and other leaders of public opinion, there will never be any question but that Kentucky will continue to stand as it has all these years at least one state which will not permit these ghouls to prey on the people of the Commonwealth.

VINCENT'S ANGINA, OR "TRENCH MOUTH"

Vincent's Angina, or "Trench Mouth", as it is commonly called, is prevalent in many localities now, and something should be taught about its symptoms, treatment and prevention. It is a far more serious disease than is commonly supposed and has proved fatal in many cases when it was not properly cared for in its early stages. Vincent's Angina is comparable to diphtheria, for both diseases are spread through the lesions of the mouth. Unlike other mouth ailments, Vincent's Angina is the only mouth disease than can bring on immediate serious consequences, for unlike pyorrhea, abscess or focal infection that strike through some chronic condition in the body, this disease has a rapidly acting and direct power through the blood stream.

This is a germ disease but unlike measles, scarlet fever and others we know of, one attack does not render the patient immune. There can be re-infection of this disease at any time. No one is immune. The germs are more common than one would imagine and are communicable in many ways. One may become infected from dishes, glasses, cutlery, etc., that have been used by an infected person and not property sterilized. Half-washed glasses in public drinking places spread this disease in many mouths. Kissing an infected person also endangers one.

The disease is usually first noticed around old crowns, rough fillings or infected teeth or gums. The gums become inflamed, red and swollen, often pushing down over the teeth. They bleed at the slightest touch. Persons with this disease often awaken to find blood coming out of the mouth during sleep. The infection spreads very rapidly in a few days, and both jaws or the entire mouth may be infected and very sore. The patient may develop high fever and the glands of the cheeks and throat are often swollen and distended. If not cared for and properly treated, death may result in this stage.

The treatment consists of careful cauterization and cleanliness. This should be done by some person who understands the disease, for irritation given where the tissue is healthy, or open lesions made by faulty treatment only tends to spread and heighten the disease. Teeth or gums must not be brushed while the disease is prevalent, for the brushing irritates. Mouth washes are made that are particularly combative and helpful and should be unsparingly used.

This condition and disease is extremely difficult to control and should have immediate attention. If the disease is treated in its early stages, the patient will suffer less pain and much less danger of infecting others.

Those suffering with Vincent's Angina, or Trench Mouth, should be conscientious and very careful to sterilize thoroughly all cutlery, glassware and china that they have used. Give your own mouth careful attention and do not re-infect, nor allow your carelessness to infect another.

R. P. KEENE, Director,
Dental Bureau, Kentucky State
Board of Health.

ORIGINAL ARTICLES

THE IMPORTANCE OF CYSTITIS AS A SYMPTOM OF SURGICAL LESIONS OF THE URINARY TRACT.*

By STEPHEN C. McCOY, M. D., F. A. C. S.,
Louisville.

Until quite recently cystitis was regarded, even by those who claimed to be urologists, as a distinct primary clinical entity; and, strange to say, it is still so considered by not a few excellent surgeons, and perhaps by the majority of physicians in general practice. By the latter especially is the presence of vesical discomfort and "cloudy" urine sufficient to justify the diagnosis of cystitis, without further investigation, and the patient is treated accordingly by the internal administration of drugs. So common has been this observation that cystitis is now designated by some writers as, "the diagnostis scapegoat."

As the result of modern urologic investigations, made possible by the perfection of mechanical devices, instruments of precision, and improved laboratory methods, it has been demonstrated that cystitis rarely occurs as a primary affection; it is practically always secondary and owes its origin to pathology existing elsewhere in or near the urogenital tract. In making this statement, however, the writer is not unmindful of the fact that intense irritation or inflammatory reaction of the vesical mucosa may result from the ingestion of various drugs, the injection into the cavity of the viscus of irritating chemical substances, the accidental or intentional introduction of foreign bodies, the presence of parasites, calculi or neoplasms, and more rarely from traumatic and toxic influences. As a rule, such irritations and the discomforts incident thereto promptly subside following removal of the factors responsible for their production.

Contrary to the conception formerly prevailing, it has been shown that the vesical mucosa is capable of successfully resisting for a considerable period the influence of bacterial invasion, regardless of the nature of the bacteria or the manner in which they reach the interior of the viscus. For example, not infrequently following surgical removal of intra-abdominal and intrapelvic pathology, colon bacilli have been discovered in the urine, yet the patient did not develop cystitis. Likewise, the urine may contain tubercle bacilli and other organisms excreted by the kidneys, without the production of cystitis. However, natural resistance is finally overcome by the constant presence of bacteria, mucosal infection then ensues and cystitis develops as a secondary manifestation.

Observations during recent years of hundreds of patients with cystitis, in varying degrees from mild to severe, show the comparative rarity of the condition as a primary disease. Thus careful study by Smith of eighty-seven females, in whom the diagnosis of cystitis had been made, failed to disclose a single instance in which the affection was primary. As a secondary manifestation it was associated with renal infection (not tuberculous) in 61 per cent, with renal tuberculosis in 19 per cent, difficulty in micturition 7 per cent, systemic and pelvic infection 7 per cent, and other lesions in 6 per cent.

In the investigation of any suspected surgical lesion of the urogenital tract, of which cystitis may be the first and most outstanding symptom, the importance of a complete clinical history, a thorough physical examination, and the employment of the various mechanical aids and laboratory methods at our command, cannot be too frequently emphasized. Since it is recognized that cystitis merely represents a symptom or secondary manifestation, determination of the underlying cause is the primary and essential prequisite; and for this determination must be utilized the mechanical and laboratory measures to which reference has been made, including the urethroscope, cystoscope, ureteral catheter, microscope, roentgen-ray, pyelograms, etc. The diagnosis of cystitis, based upon the subjective symptoms and gross appearance of the urine, is no longer justifiable under any circumstances.

While vesical discomfort, disturbances of urination and cystitis are often the primary and most prominent symptoms of several surgical lesions of the urogenital tract, only a limited number of them can be specifically discussed in this brief paper.

In every type of renal infection, pyuria is the first sign which attracts attention; and the constant presence of infected urine sooner or later causes cystitis to develop. Thus lesions of the kidney assumes the role of greatest importance as primary causative factors. Of these pyelitis is the most common. The onset may be insidious and the infection may persist for an indefinite period without the production of symptoms other than the accompanying pyuria and subsequent cystitis. However, the diagnosis of renal infection cannot be made upon the mere presence of pus in the urine; cystoscopy, ureteral catheterization, microscopic examination of urine from each kidney, and also pyelography, may be required to complete the diagnostic picture.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

Perhaps the majority of the patients who have been treated weeks or months for cystitis by the physician, and those who have been subjected to operation for vesical drainage by the surgeon, when examined by the urologist have been found to have pyelitis. This has happened so frequently in my personal experience,—and doubtless it has also been the observation of other urologists,—that it would seem proper to suggest: unless the physician or surgeon to whom the patient first applies for advice has at hand the facilities necessary for making a sufficiently thorough urologic examination to complete the diagnosis prior to the institution of treatment, such patients should be promptly referred to a competent urologist for investigation of the entire urogenital tract, instead of being treated under the presumptive diagnosis of pyuria or cystitis. Of course, it is not expected that every practitioner of medicine can immediately become an expert in urologic examination, but if possessed of the requisite equipment he can soon acquire the finer details of technique necessary to enable him to make a correct diagnosis in the majority of instances where no unusual complications exist.

In renal tuberculosis, or the so-called tuberculous kidney, the initial symptom to which attention is directed may be an intractable cystitis; and the fact that the patient becomes worse inscad of improving under the usual methods of treatment should create the suspicion of tuberculous infection as the underlying cause. In such cases repeated examinations of the urine may fail to disclose tubercle bacilli, but the diagnosis can be easily made by careful urologic examination without awaiting the result of guinea pig inoculation as was formerly the prevailing custom. Early diagnosis is an important item in every type of renal disease, and this is particularly true in tuberculous infection.

Cystitis is a common symptom in obstruction to the urinary outflow, especially in cases of gradually developing obstruction due to prostatic enlargement in which a greater or lesser quantity of residual urine is always present. In the absense of a thorough urologic examination the diagnosis may be delayed until the supervention of complete obstruction with urinary retention. Such are the conditions which have often been found present when the patient was finally referred to the urologist for investigation and diagnosis. In many instances, the prostate had not been examined by the attending physician, thus the cause of the obstruction had remained unrecognized, and the patient had been treated in the meantime for supposed vesical pathology.

In cases of partial urinary obstruction of long duration from any cause, especially where frequent catheterization has become necessary, infection of the vesical mucosa is usually inevitable and entails a long train of distressing symptoms commonly diagnosed by the physician as cystitis. Early urologic examination in such cases will insure accuracy in diagnosis and prevent the development of serious complications.

Cystitis is occasionally noted in ureteral lesions, such as infection following obstruction from calculi, neoplasms, angulations, kinks, etc., due to the constant presence in the vesical cavity of infected urine. In such cases the kidney may remain uninvolved. The patient is treated for a time by the physician for ordinary cystitis without improvement. The underlying cause of the trouble remain unsuspected, and the diagnosis is consequently not made, until after careful investigation by the urologist. Not infrequently cases of this type are observed subsequent to surgical operations upon the pelvic viscera during the execution of which the ureter is either displaced or injured.

The presence of vesical calculi or neoplasms may produce the most intense cystitis, and yet the causative factor may remain undiscovered until the patient is examined by the urologist, the attending physician meanwhile administering drugs in the attempt to relieve the vesical discomfort. The diagnosis in such cases is attended by no difficulty when the requisite instrumental aids are utilized by the urologist.

There remains for consideration a small group of cases in which cystitis owes its origin to extrinsic causes, such as vesical pressure from neoplasms involving the rectum or adjacent pelvic viscera, the pregnant uterus, marked displacement of the normal uterus, etc. The disturbed anatomic relations plus constant pressure creates irritation of the vesical mucosa followed by inflammatory reaction and finally cystitis. Fortunately such cases are comparatively infrequent, and the diagnosis usually entails no especial difficulty.

However, the suggestion seems pertinent that in every gynecological case, where urinary symptoms are present, the patient should be referred to the urologist for thorough investigation of the entire urogenital tract.

PULMONARY TUBERCULOSIS.*

By James A. Britton, M. D., Chicago, Ill.

Pulmonary tuberculosis is a disease of the lungs due to an infection of the body in childhood by tubercle bacilli, but not usually manifest until adult life. While there may be isolated cases of infection originating in adult life, authorities almost all agree that by far the greatest majority of cases date back to childhood. It then follows that the development of a manifest tuberculosis in adult life is not a new infection but a reactivation of an old infection.

While there are a few cases of manifest pulmonary tuberculosis in childhood, these cases are comparatively rare. The tuberculosis in childhood is generally of a different type, with different manifestations, than the adult type of the disease. While the disease in adult life is typically a lung disease, at various stages foci of the disease may develop in any one or many of the organs or tissues of the body.

It is customary to describe the symptoms of tuberculosis as being peculiar to tuberculosis, but, as a matter of fact, the symptoms of a tubercular infection are the same as those of any other infection; but the characteristic about a tubercular infection is that the symptoms continue over a long period of time, weeks, months, or even years, with irregular intermittent exacerbations. Ordinarily a germ infection is characteristized by symptoms which manifest themselves over a comparatively short period of time, hours, days, or at the most weeks, but with tuberculosis the symptoms may scatter intermittently over fifty or seventy-five years, and usually ten or fifteen years. In addition to the usual signs of a germ disease there is in most cases a cough with expectoration and the sputum usually contains tubercle bacilli.

Economically tuberculosis is one of the most important diseases, although at the present time the number of cases of this disease is much reduced from what it was a few years ago. In 1900 the average death rate from tuberculosis in those areas in the United States where reports were made, was 202 per 100,000 population; 25 years later—in 1925—this had been reduced to 80 per 100,000 population. In spite of this very great reduction in death rate, pulmonary tuberculosis still leads in economic importance as the cause of death or disability between the ages of 25 and 40.

The diagnosis of tuberculosis is not always easy, but there are certain characteristics which if noted make the diagnosis reasonably sure. There is no disease in which the history is of more importance. The exposure in early childhood to a case of open, active tuberculosis is one of the most important points in the history. The so-called "cold" which persists over one month is very apt to be tuberculosis. Blood spitting is so seldom due to anything else but tuberculosis that a physician is bound to consider blood spitting as pathognomic of the disease. Unless some other definite cause can be found, it is safe to say that 98 per cent of all cases are due to tubercular infection. Pleurisy with effusion in an adult must be considered due to tuberculosis unless there is some other evidence to the contrary. Again at least 95 per cent of pleurisy with serous effusion is due to a tubercular infection. The very irregularity of the fever is characteristic.

On physical examination there are some things that are characteristic: Moisture in the upper part of one or both lungs, as evidenced by crepitant rales above the third rib, is practically always due to a tubercular infection. X-ray markings are usually characteristic although any x-ray findings must be considered with the clinical history of the case. The one absolutely sure diagnostic finding is sputum with tubercle bacilli.

There are a number of things from which tuberculosis must be differentiated:

(a) One of the most difficult differentiations is a blood stream infection with streptococcus veridans. If the organism can be definitely demonstrated in blood then one can be sure of the differentiation; but sometimes there are such infections where it is impossible to get the organism from the blood. In these cases there will always be a question as to the diagnosis.

(b) Certain types of bronchitis are very difficult to differentiate; but, generally speaking, one should be very careful in making a diagnosis of simple bronchitis which has persisted for a considerable length of time.

(c) In England, it is commonly said that at least half of the cases of asthma are due to tuberculosis. Again, generally speaking, the asthma of the type, like those that follow hay fever, are not tuberculosis; but the chronic asthmas of old people are apt to be marked fibroid tuberculosis.

(d) Great loss of weight, the great disability, and the sweats incident to certain cases of diabetes, is apt to make a confusion between these diseases.

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*Read before the Jefferson County Medical Society.

(e) Any heart and kidney disease where there is fluid in the base of the lungs, and crepitant rales which one hears because of this fluid, is sometimes confused with tuberculosis.

(f) It is very difficult to differentiate syphilis and tuberculosis because in the great majority of cases syphilis of the lungs is accompanied by tuberculosis of the lungs.

(g) Malignant disease, where there is involvement of the lungs, produces many symptoms. X-ray pictures, cough, shortness of breath, even fever, and bleeding, are characteristic of both diseases. The usual rule to follow is, where there is very evident extensive disease of the lungs with negative sputum, one should think of malignancy rather than tuberculosis.

(h) The resulting condition due to a dust deposit in the lungs, pneumokoniosis, more specifically siliocosis, is sometimes confused with tuberculosis; but, again, in the advanced cases of pneumogoniosis there is usually tuberculosis.

(i) In hyperthyroidism, with the great loss of weight, rapidity of pulse, general appearance of patient, may lead one to suspect tuberculosis. In this condition one is greatly assisted through the metabolism test.

The treatment of tuberculosis is really a social as well as a medical problem. It involves all sorts of things which have to do with living from early childhood to old age. First: From a public health standpoint the most important thing in treatment of tuberculosis is the prevention of massive infection in childhood by separation of the child from contact with an open, active case of pulmonary tuberculosis. Second: The next most important preventive measure is to hospitalize the far-advanced incompetent case—a case in which the disease has so progressed that the patient is unable to use ordinary effort to prevent the spread of infection. Third: The third most important general measure is to maintain high standard of general health in all children; this involves not only proper care but also includes correction or removal of those common defects of childhood which are really handicaps to the general health. Fourth: An additional public health measure of the utmost importance is to concentrate all agencies, both public and private, on the treatment of all "economic sore spots" of the community. It is a well known fact that any group of individuals so economically unfortunate or inferior as to be below the possibility of sustaining a fair standard of living, will always be found to have a high sickness disability rate, and especially a high tuberculosis rate.

In the treatment of the individual case the fundamentals of all treatment are rest, fresh air, and proper feeding. Of these three by far the most important is sufficient rest. All the fresh air and all the food in the world will not do any good if the patient does not have rest. On the other hand, if there is sufficient rest the patient will get better in spite of fairly poor air and very plain food.

Generally speaking, the average patient will do better in a shorter time in a well-run sanatorium than at home, even if the home is a very good home. There is so much detail, so many little things to learn in "taking the cure" that in the average home cannot be learned. In large communities where it is impossible to furnish sanatorium care to all those needing such care, it is found to be of considerable advantage to supplement the ordinary home care with dispensary nursing service.

Medicine, drugs and serums, have little place in the treatment of tuberculosis. Everyone who has to do with tuberculosis hopes that some day some specific drug will be found which has a specific action on the tubercle bacilli, but up to the present time no such drugs has been found. Serums have come and serums have gone but the net result of treatment with them has been largely in the imaginations of the patients and doctors. The treatments of complications of tuberculosis are only supplemental to general care but they cover the entire range of medicine and surgery.

Probably one of the most important recent developments in the treatment of tuberculosis is the use of heliotherapy, both natural and artificial. While the use of heliotherapy began a number of years ago it is only within the last five or ten years that the methods have become at all general. While there is still a great deal to be learned about the technique of the use of light, it is very evident that at least in certain types of the disease light, either artificial or natural, has a very benecial effect.

The surgical treatment of pulmonary tuberculosis has also been developing very rapidly in the last five or ten years.

(a) Pneumothorax has been used for the last 25 years but only within the last few years has it become general. It is now a part of the regular treatment in any well-run sanatorium. This treatment is only possible in about 5 per cent of all cases. Of this 5 per cent, in which the indications seem to be right, perhaps half are very definitely benefitted.

(b) Another surgical procedure is extrapleural thorocoplasty and is practiced in some of the better institutions. This also is a procedure which is only suitable for a very small percentage of cases. While pneumothorax may be used in five per cent of cases, this more radical procedure can only be used in about one-half of one per cent.

(c) Other surgical procedures, phrenicotomy and lobectomy have been tried but are still in the experimental stage.

After all there is nothing in the way of special treatment that at all compares with the routine, rest, fresh air, and food treatment, of the well-run sanatorium.

The prognosis in individual cases depends in a large measure on the extend of the disease when treatment is begun. While there are such things as individual resistance and temperament, economic status, and place of treatment, which all have a very decided influence, the big thing is the stage of the disease when the treatment is begun.

In real early cases, the old incipient and present minimal classification, proper care should return at least 90 per cent to a self-supporting basis and nearly all of this group should remain without signs of active disease for long periods of time. In the so-called moderately advanced group most of the well-run institutions report 60 per cent, apparently arrested, returning to work and remaining at work for years. For the far advanced group there is rarely a real cure reported but as many as ten per cent become sufficiently arrested to warrant returning to a self-supporting occupation for an indefinite period.

We are constantly asked as to the future of the tuberculosis problem.

First. It is theoretically possible to control or abolish all contagious or infectious diseases.

Second. Such community control depends on the degree of popular understanding of the problem and the sincerity of the popular desire for right standards of living.

Third. If we think of a community “sore spot” as a place where child life and health are constantly in danger, it will not be difficult to agree on the field for constructive health activity.

Fourth. If those in authority, whether by choice or by fortune constantly strive to eliminate all the “economic sore spots” of the community, irrespective of the cause, the general health standard will rise and tuberculosis will steadily decrease.

RUPTURED APPENDIX WITH EXTENSIVE PERITONITIS. WHEN SHALL WE OPERATE?*

By F. A. Jones, Paducah.

I probably owe this society an apology for choosing this subject, as I have not had the experience that some of the older physicians and surgeons here have had, and also my being to a great extent in general practice; however, I have observed that a great number of surgeons, both here and elsewhere, are treating this very serious disease by two widely different methods, and the main purpose in writing this paper is that they are not as a unit in advising as to just when to operate in this condition of ruptured appendix with peritonitis. A number of years ago there was a group of authorities and surgeons who taught and advised that even in an acute appendix where there was very little if any peritonitis involvement, that it would be best to wait until the acute symptoms subside then operate, but we are all practically agreed now that in all simple acute appendices where there is no rupture and very little if any peritonitis to operate at once, but in the ruptured appendix with extensive peritonitis there is one group who advises waiting until the acute peritonic symptoms have subsided, such as the differential blood count becomes nearer normal, white blood count decreases, temperature subsides, etc., then operate, and there is another following who advise operating at once; not only in those desperately ill cases of ruptured appendix with peritoneal involvement, but in all cases of appendicitis, whether simple acute or ruptured.

It is the essayist's belief and opinion that the latter group is correct, and in following this line of procedure there will be more lives saved than where you practice “watchful waiting” to see whether the patient dies or the peritonitic symptoms subsides and he or she gets a little better before operating. After all, it is lives we are trying to save, and any line of treatment in surgery that will save more lives than another, then this will naturally be the treatment of choice.

There are many noted surgeons, both here and in Europe, who will bear out the contention that we should operate and operate at once in all cases of appendicitis, whether simple acute or ruptured. There are several thories advanced why a ruptured appendix kills so quickly. One is that the toxins cause a paralysis of the vascular centers in the medulla; another is that the toxic effect is exerted upon the capillaries of the abdominal cavity, as a result of which the portal circulation is injured, the blood being accumulated in the abdominal cavity and cannot be transported any further, in other words, there is a hemorrhage into the abdominal cavity, and the toxins acting upon the peritoneum producing a reaction causing the peritonitis. There are other theories, but these are the most plausible ones.

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*Read before the Southwestern Kentucky Medical Association, Paducah.

Kischner states in a review of the cases treated at the Koenigsburg Clinic and the collection of ten thousand case records in the last thirty years by a questionnaire sent out to twenty-three clinics and hospitals, that the mortality of operations for ruptured appendix was in those operated on:

First twelve hours, 24 percent.

Twelve to twenty-four hours, 32 percent.

Twenty-four to forty-eight hours, 45 percent.

After forty-eight hours, 66 percent, and he concludes that every case of ruptured appendix with extensive peritonitis should be operated upon at once, he also stated that all the surgeons with the exception of one, to whom the questionnaire was sent agreed on the fundamental principles of immediate operation. In operating, he and practically all others, emphasize the importance of a long, free incision in the abdominal wall made directly over the focus of the disease, the incision made large enough to allow a good view of the diseased focus and an easy approach to it, and he also emphasized gentleness in handling the tissues, and the importance of removal of the source of infection in the simplest manner possible.

Ansinn states that in the vicinity of Griefswald, Germany that the conservative or "waiting surgical" treatment there has had an unfavorable influence on the physicians and patients hesitate to be operated upon and as a result he believes, there are more deaths than otherwise would be. Whenever the conservative surgeon practices adding more days of delay to the already too late patient, the same is a most disastrous way of teaching the general profession earlier work, and educating the laity to agree to early surgery. The late Dr. Joseph Price, who is now dead, and his colleague, Kennedy, of Philadelphia, both of whom favor operating at once, states that he has heard physicians, numbers and numbers of times, after taking patients in the supposed peritonitic stage following ruptured appendix to the hospital say, "I guess I was not too late as the surgeon said he would not operate for a few days." He went on to state that we, as physicians and surgeons, would never get rid of extensive drainage or any kind of drainage in appendicitis until we as physicians are united on "first hour surgery" irrespective of the stage. Nor can any hour other than the "first" be devised in a condition in which one patient may exist for years, and another be dead in less than twenty-four hours after the first symptoms.

When the physicians and surgeons move as a solid phlanx for first hour surgery in appendicitis, irrespective of the stage of involvement, then and not until then will we save more lives, and have less drainage cases. I might add incidentally that Drs. Price and Kennedy emphasize the importance of a certain form of drainage as an aid to lessened mortality and the prevention of post-operative obstruction in these cases. They advocate the insertion of the coffer dam drain of gauze in preference to the rubber tube. All drainage is supposed to be capillary. Gauze will empty a glass of water by capillary action, the rubber tube will not. Of course the primary source of infection or the leak in the drain pipe, must be stopped before the leaking filth can be thoroughly disposed of, then insert the coffer dam of gauze to the most dependent part of the abdomen, packing one piece close beside the other. This elevates the viscera and prevents the intestines from laying in a lake of pus, thereby preventing post-operative paralysis and obstruction, and at the same time give thorough and complete drainage. This appears to have merit over the ordinary rubber tube drainage. However, I merely mention this more for the sake of discussion than anything else, and I notice a great many surgeons or rather I might say most surgeons are using the ordinary rubber tube for drainage.

The moment we begin to bring in classifications, which means differentiations, into this very serious disease, then our opinions will never unite. In regard to statistics in appendix cases, it is useless to make comparisons in the death rate of appendicitis of different operators until we know the operators views; namely, whether he believes in operating at once in all cases of appendicitis, or whether he believes in following the so-called conservative course, that is, waiting until he sees whether the patient dies or the symptoms subside before operating. The very bad risks would die before the interval surgeons operated, while these very bad risks may or may not die following operations by the surgeon who believes in operating at once in all cases of appendicitis, irrespective of stage.

The only fair way of making any comparison of results is for the conservative surgeon to count those deaths which occur while he is waiting for the quiescense of the acute symptoms, as his surgical deaths, even though he has not operated on these cases. That would figure in the radical surgeons mortality, and would constitute about all the mortality he would have. If this comparison is made over a long list of ruptured appendices, which should be the correct comparison, then it is the writer's belief that the radical surgeon will save far more lives in the long run than the conservative or waiting surgeon. If one form of treatment is correct, the other must be wrong as they are two entirely different methods of treatment.

In conclusion gentlemen, I wish to state that as there are a great many prominent surgeons both in this country and in Europe, who also advocate the conservative or watchful waiting treatment of this disease, and if this paper will cause a discussion whereby the profession will become as a unit in the correct and right treatment in this very serious and fatal malady, then the writer will feel that this paper will have served its purpose.

Muscular Effort and Heart Disease.—Clarke-Kennedy and Owen assert that, from the physiologic standpoint, heart disease is to be looked on from the point of view of progressive disintegration of function. As the functional efficiency of the heart is reduced by disease, integration of cardiorespiratory function is for a time maintained by a corresponding reduction in the functional capacity of the mechanical apparatu o bsfrreathing. When the limits of this protective reatcion are reached, disintegration of cardiorespiratory function begins; circulation now fails ventilation, oxygen intake before carbon dioxide eliminaton, and cardiac output before venous return. Then alone do the symptoms of congestive cardiac failure supervene.

Amyloid Nephrosis.—The case reported by Linder, Maxwell and Green was diagnosed as one of "nephrotic contracted kidney" and the presence of amyloid, though suggested by the history, was unrecognized. A cclinical, histologi and biochemical study was made in this case. The total acid-base equilibrium and the cholesterol in the serum were followed closely, and their clinical values are discussed. The occurrence of tetany and of symptoms of salt deprivation are reported.

FOCAL POINTS OF INFECTION PRODUCING TOXEMIA.*

By Harvey H. Roberts, Georgetown.

One of the most frequent causes in the etiology of many systemic diseases, is some focal point of infection. The absorption of toxic material generated, as the result of the presence of bacteria and other non-invasive organisms, will produce well marked local and general symptoms.

Local focal points of infection are subacute and chronic sinusitis, infected roots of the teeth, concealed pus cavities in the alveolar processes, chronic alveolitis, oral cavities, submerged tonsils, the frontal sinus and other accessory sinuses of the nose. Infection is often located in the maxillary sinus, latent mastoiditis, otitis media, and purulent ethmoditis of either the anterior or posterior cells. There may be purulent deposit in the sphenoidal cells, and the continuation of this condition in either the ethmodal or spenoidal cells, will cause necrosis. The gall bladder, the gastro-intestinal tract, as well as the prostate, tubes, uterus and etc. may be focal points for infection.

While there is an abundant evidence of a toxic condition recognized as having its origin within the intestinal tract, it is only recently that specific classification of bacterial and other organisms have been defined.

The focal location of infection may be in various parts of the body, and is often unrecognized until serious damage has resulted to the vital organs. From these various sources there may be systemic involvement from a number of different organisms, producing their characteristic effects.

The toxic condition, as the result of intestinal absorption, will differ from other toxemias, which may be produced by other poisonous toxins or drugs, in as much as they are produced at the point of bacterial lodgement and not at some remote location.

If more careful study is given to focal points of infection and more thorough investigation and search for the cause of many of the chronic disease, many of the acute forms of toxic invasion could be removed and the chronic and destructive results prevented.

It has been demonstrated beyond the experimental stage, that many of the acute and the majority of all chronic diseases, have their origin as the result of poisonous toxins developed within the body.

With such systemic infections a condition of leucopenia is produced and this symptom alone will give valuable aid in suspecting the source of the condition present. Leucopenia by either its direct or indirect effect, lowers the vital resistance and renders the patient more susceptible to the contagion and infection of many other forms of disease.

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*Read before the Scott County Medical Society.

During the last epidemic of influenza, the marked depressing effect of the toxemia, resulted in marked leucopenia. Many of the fatal complications which followed in the footsteps of the attack of influenza, was traceable to the presence of the condition of leucopenia.

The study of the exudates from local foci will invariably reveal the presence of some specific bacteria. During an investigation and experimenting with various strains obtained from cultures made from focal points of infection, it has been demonstrated that the same disease could be produced in the inoculated animal. Strains made from the exudates of patient with arthritis or rheumatic fever, produced arthritis. Strains made from patients with endocarditis will reproduce endocarditis in another patient. Strains made from patients suffering with pericarditis, myositis, cholecystitis, chronic arthritis, some forms of neuritis have produced the respective lesions in the experimental animal. Such demonstration proving beyond doubt that many of the disease have a specific predilection for the source of their development, as well as, their focal point of infection.

It has been proven that from the focus of infection,—there are strains which have a specific affinity for certain tissues and organs of the body, such as the heart, cardiovascular system, serous membranes, etc. A most important factor revealed from laboratory investigation, is that the amount of oxygen supply, will bring about characteristic results. This is worthy of note when we recall that many of the systemic disease are influenced by the increased or diminished supply of oxygen.

We know that there are micro-organisms when introduced into the body, will become infections, yet they do not have the power of self-invasion. They require inoculation in quantities before they can mutiply and cause general or local infection. This class of pathogenic bacteria possesses the power to produce poisonous toxins, but does not have the power to invade the body unassisted.

The primary focus of the micro-organism, may be determined by the path of invasion. Lowered vitality of any organ or tissue, through lack of proper nutrition or injury will render the patient more susceptible to infection and will require less of the toxins to cause systemic or localized infection.

In the chronic disease the toxins are absorbed slowly. There is often some protective resistance, so that there is gradual infection, which may take years in developing, as in cases of arteriosclerosis and like conditions.

When the normal functions of the body are active, the intestinal secretions normal, the ductless glands and other vital forces performing their work without impairment or interruption there is lessened the danger of systemic contamination as the result of poisonous toxins.

When the whole of the gastro-intestinal tract is normal, there is diminished bacterial development. If the functions of the stomach are guarded, the liver being active, and a healthy pancreatic secretion we can rest assured that the danger from systemic invasion from the gastro-intestinal tract is very slight.

For this reason the physician should at all times give special attention to the gastro-intestinal tract, that its functions may be preserved and the barrier of protection kept at the highest point of efficiency.

Careful examination of the roots of all teeth by means of the x-ray will often reveal pockets of pus that were not suspected before, nor did any local signs point to the possibility of the source of infection.

A clear radiograph of the facial sinus will often disclose a chronic sinusitis acting as a local focal point of systemic infection, producing many of the so-called rheumatic affections, heart diseases and chronic kidney disorders. A submerged tonsil having concealed pockets of pus is the beginning of many serious conditions. Many infected kidneys, hearts, gall-bladders, the cardio-vascular systems and the serous membranes often have their origin from an unsuspected submerged tonsil.

The systemic manifestation of such conditions as persistent neuritis, uncontrollable iritis and pain about the eyes, face and neck, will frequently disappear upon the extraction of an infected tooth.

Of the various points of local infection, I do not believe there is another part of the body which produces a greater source of systemic infection than the gastro-intestinal tract. Many conditions with symptoms of gastrialgia, chronic indigestion, hypochlorhydria and hyperchlorhydria, chronic gastric catarrh, colitis, chronic appendicitis, etc. etc., will be found to have a well defined cholecystitis as the primary cause of the gastro-intestinal disturbances.

Many stomach symptoms, which show a reactivity, rather than subjugation during treatment, will reveal a chronic pancreatitis as the true cause of the symptoms. Many painful parts of the body which are not benefited by treatment, may be traced to the origin of such conditions, as an infected antrum or some of the cavities of the face.

I believe that many conditions as chronic neuritis, persistent rheumatic symptoms, chronic nephritis, cholecystitis, frequent cases of high-blood pressure, hardening of the arteries and other forms of sclerosis are due to intestinal toxemia. Many of the intractable nervous symptoms, psychoneuritis, and the various psychosis, many forms of phobias and the frequent and persistent neurasthenias, have their origin from the poisonous toxines generated within the gastro-intestinal canal. I am confident that there are many inmates in our public asylums, confined for some mental derangement, that could be relieved, if the toxic condition from the gastro-intestinal tract was removed.

Alimentary glycosuria is frequently diagnosed as true diabetes, when the correction of a faulty diet will remove the cause. Vertigo and dizziness may be mistaken for high-arterial tension when the underlying cause is an infected intestinal tract. Acetonuria and indicanuria are frequent symptoms of sub-oxidation within the intestinal canal. Such symptoms are often misleading as to the real cause, that of intestinal toxemia. A few doses of formin will remove any question as to the intestinal source.

Muscular pains and loss of weight are often traceable to the intestinal intoxication. Persistant insomnia may be quickly removed by a thorough dose of calomel, cleaning out of the gastro-intestinal tract. Enterogenous cyanosis is the result of intestinal toxemia, and may be confused with other systemic conditions. Removal of the infected material will cure the cyanosis. In many puzzling cases found in practice, careful examination of the urinary findings and the examination of the intestinal flora, will give definite indication of the source of the condition present.

Hyperthyroidsm and exophthlamic goiter and other glandular involvement of the system, have been attributed to the toxic findings from the gastro-intestinal canal.

Micro-organism entering the system through the gastro-intestinal tract are subjected to the action of the acidity of the stomach, the alkalinity of the intestines, the bile salts also, the antagonistic action of other bacteria and micro-organisms present in the intestines. The oxygen supply will furnish another condition of the normal efficiency of the gastro-intestinal secretions, as to whether the invading enemy is to survive or succumb. Therefore, the mechinical defense of the mucous membrane, the intestinal secretion and vital resistance is the important factors, which will safeguard the body against the invasion of infecting micro-organisms. It is obvious that any impairment of the normal gastro-intestinal secretions, weakening of the protective mechanism will destroy the defences and the invasion of infecting bacteria will be comparatively easy.

When the intestinal tract has become infected, there will be increased impairment of the normal peristalsis. With diminished contractive and expulsive powers there will be further retention, and with more retention there will follow further contamination, as the field for bacterial development is constantly increasing.

The presence of toxic material in the intestinal tract not only produces infection of the body, but the condition has an injurious effect upon the mucosa and muscular tone of the intestinal walls, so that the structural mechanism is being weakened as the condition increases. This is followed by severe inflammation, colitis and perhaps visceroptosis resulting.

Iliac stasis is a physiological condition caused by the activity of the ileocecal sphincter. Any impairment of the normal functions within the neighborhood of the cecum causing insufficiency or muscular spasm of the intestines will increase the stasis.

Therefore, to correct the infected intestinal tract, the toxic material must be removed, stasis corrected and a better hygienic manner of living encouraged.

Nothing in my judgment is more injurious than the habitual taking of the various brands of mineral oils. Mineral oils and saline cathartics given in sufficient doses to produce cathartic results, are very injurious, not only impairing the secretions of the stomach and intestines, but such methods open up avenues for more prompt and thorough absorption of the toxic material present. Calomel, purgatives, mineral oils, salines, etc., while producing temporary effects, have no curative results for the underlying cause. But they do intensify the condition already present and add injury to the already impaired bowel, and prevent curative methods which might be introduced.

The continued use of mineral oils will produce a condition of atony of the intestines and stomach, in this way destroying normal secretions and weakening peristalsis. As a result of the impaired functions of the gastro-intestinal tract, there is formed an exudate in certain portions of the intestinal walls, such as the sulcis, pockets, etc. This is so tenacious that the most powerful cathartic can not remove it. The brooklet winding its way down the mountain side will effect the boulders in its path in the same way, running over them, running around them, but never through them.

If we are to relieve this intestinal toxemia, we must first correct any impairment or derangement of the gastro-intestinal secretions. Viseroptosis if present, must be corrected by appropriate abdominal support. A course of treatment with the sinusodial and faradic electric currents will be of benefit for the muscular and nerve toning. The galvanic current will increase normal secretion. Careful use of the high-frequency currents will do much to remove congestion and improve circulation within the arterial system of the intestinal walls. Proper application of water externally to the gastro-intestinal region, will remove local and general congestion. This should be applied, alternating, by means of hot and cold fomentations. The effect of such treatment will increase cellular protoplasm activity, give strength to the muscles, cells, leucocytes and lymphocytes.

For the intestinal contamination, appropriate antiseptics should be used to destroy and inhibit the presence of bacteria. This can best be accomplished by the judicious use of some of the mercurial salts. The colloidal mercury compounds are best, as they have powerful germicidal action, they are non-toxic, non-irritant, have the advantage of being insoluble—they are not precipitated by acids or alkalies, or by soaps within the intestines, but are eliminated in the feces.

One of the most dangerous methods often practiced after administering calomel is to give a dose of castor oil. This has a tendency to dissolve the mercury and consequently it will be absorbed with its toxic effect.

To dissolve the exudate within the intestinal pockets, depressions and grooves, I have found that nothing answers better than small doses of the vegetable oils, such as equal parts of olive oil, peanut oil and castor oil. The castor oil must be fresh cold compressed and should be boiled for thirty minutes before mixing with the other oils. A tablespoonful of the mixture should be given every night and morning for a week, this to be followed by a dose of ten grains of blue-mass. This will very effectively remove the "blue mud" which has accumulated within the walls of the intestines. This oil combination has the properties of readily undergoing saponification and will dissolve or disintegrate the "blue mud", causing it to be expelled readily by a brisk cathartic.

After the source of infection has been removed or brought under control, the gastro-intestinal functions must be improved. The general health of the patient should be further fortified by special exercises in the open air followed by invigorating baths and dry rubs. A selected diet for the individual should be inaugurated and the general improvement of the living quarters and restful environment encouraged. This will do much to improve the general condition and aid in prolonging the life of the patient.

Wholesome diversion, such as horse-back riding, a moderate amount of golf, regular walking and any of the less strenuous out-of-door sports will be conducive for reducing the danger of re-infection.

The sero-bacterines and various combination of bacterines have been useful in many cases. A special autogenous vaccine for the individual case has proven of advantage. All, however, have their places and splendid results have followed the careful selection of some of the regular stock bacterines.

We should bear in mind in the treatment of all chronic diseases of the human body, that the most important feature is always a correct diagnosis. Then the removal of the cause. The system should be fortified and the patient rendered immune against any further infection, as far as it is possible.

This may best be accomplished by careful training in a system of rational living, with a better knowledge of the value of foods and the importance of selecting wholesome foods for the individual. There should be a systemic form of education for the young people in the schools as to the composition and value of food for keeping the body in good health. This advice should apply to grown-ups as well. There are very few people who have a correct knowledge of the value of food, or the necessity of eating certain forms of food for renewing the bodily functions, rebuilding tissues and acting as fuel for the body. The selection of certain forms of food that the mineral salts may be kept normal is an important thing. If the practice of proper eating was more universally practiced by both physicians and the laymen, there would be less illness, a greater efficiency with mankind, and the prolonging of human life.

As physicians, we should impress upon our patients the necessity as a means of preventing disease, the protection of the vital organs of the body, and prolonging life, that they shall have a careful systematic examination of the body at least once every year.

Eosinophilia in Asthma and Hay-Fever.—In an effort to determine the significance of eosinophilia in allergy, a painstaking analysis was made by Brown of 370 consecutive differential leukocyte counts on 346 different patients with asthma, hay-fever or some allied condition. There were only four patients in this series with excessive eosinophilia (about 20 per cent); namely, one with perennial hay-fever and three with asthma, and all four of them were nonsensitive.

THE DIAGNOSIS AND LOCALIZATION OF SPINAL CORD TUMORS.*

By Leon K. Baldauf, M. D., Louisville.

The results now obtained in the diagnosis and localization of spinal cord tumors are most satisfactory. The lesion is more frequently suspected, the clinical examinations are more carefully made, the laboratory examinations essential in a certain percentage of cases are being constantly improved, and the diagnoses and localization are more frequently made. According to Dandy, "It now seems possible not only to diagnose and accurately localize every spinal cord tumor, but also to confidently exclude tumors in a differential diagnosis."

The diagnosis and localization having been made, nothing now more brilliant can be offered by surgery than the marvelous restoration of function after the removal of certain of these tumors. Advances in the study of spinal cord tumors have occurred rapidly in the past few years. Newer laboratory methods, augmented by x-ray examinations, have increased the number of positive diagnoses; but with all the newer methods the diagnosis in the large percentage of cases rests on a careful history and a careful neurological examination.

A complete study in spinal cord diagnosis and localization now includes a careful history and painstaking neurological examination, a study of the spinal fluid, hydrostatic, hydrodynamic and chemical and, when necessary, an attempt at exact localization by the injection of foreign substances, such as air and lipoidol, aided by the x-ray.

The present extensive studies of the cerebral spinal fluid, particularly those relating to spinal cord tumors, were probably stimulated by the paper of Froin, which appeared in 1903. Froin in his paper on Xanthrochromie et Coagulation Massive maintained that a yellow spinal fluid, cloudy with albumin, with a normal or only slightly increased cell count, and clotting on standing, indicated spinal compression. This type of fluid until recently was supposed to be found below the site of compression, but recently Cushing and Ayer have shown that in certain tumors of the cauda equina a yellowish fluid may be found above the compression. This is, of course, of great importance when localizing tumors of the cauda equina. Various theories have been offered as an explanation for this peculiar phenomenon,—hemorrhage, transudation from the surface of the tumor, or the compression area or probably a leakage from the engorged veins lying beneath the tumor. Ayer attempted to reproduce this syndrome of Froin experimentally and injected paraffin into the epidural space of cats with the production of signs and symptoms of a transverse myelitis. The spinal fluid obtained below this compression area usually showed marked increase of protein and at times was yellow and clotted spontaneously. Following the publication of numbers of cases, showing that this type of fluid merely indicated spinal compression, more careful chemical examinations of fluid were made and Ayer in particular demonstrated that an increase of protein, particularly where the double spinal puncture was made, was equally important.

In 1913 Pierre Marie, Foix, and Robert introduced double puncture as an aid in the diagnosis and localization of cerebral and spinal cord tumors. They recognized a difference in cellular content below tumors, but the danger incident to punctures above the cauda equina made these punctures rather unpopular. In 1919 Wegeforth, Ayer and Essick practiced cisternal punctures—in animals, and the clinical application of this puncture was made in 1920 by Ayer. As described by Ayer, the patient is placed on the side as if for lumbar puncture, with the neck moderately flexed, care being taken to maintain the alignment of the vertebral column, to prevent scoliosis and torsion, and in cases where comparative pressure readings are important the lumbar and cisternal needles are in the same horizontal plane. After antiseptic preparation of the skin, usually including the shaving of a little hair, and the local anesthetization with procain, the thumb of the left hand is placed on the spine of the axis and the needle inserted in the middle line above the thumb. The needle may be pushed rapidly through the skin, but should then be gradually forced forward and upward in a line with the external auditory meatus and glabella until the dura is pierced. If the cisterna be entered at this angle there is usually a distance from two and a half to three cm. between the dura and medulla, as shown in frozen section. With the needle less oblique in position the distance between the walls of the cisterna becomes progressively less. Therefore it is a good practice to aim a little higher than the auditory meatus, and if the needle strikes the occiput to depress just enough to pass the dura at its uppermonst attachment to the foramen magnum.

The cisternal puncture is contra indicated in the presence of a choked disc. At first cisternal puncture appeared to be rather dangerous, but in 1923 Ayer reported nearly two thousand successful punctures with no mortality which could be directly attributed to the puncture.

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*Read before the Louisville Medico-Chirurgical Society,

Making use then of the double spinal puncture, cisternal and lumbar, Ayer developed a technique capable of demonstrating spinal subarachnoid block. Ayer showed that in a cord free from block the pressure of the spinal fluid from the two punctures should be equal, that direct pressure on the jugular veins, because of their freedom from valves, would cause an increase of presssure and that where block existed, whether it be caused by spinal cord tumor or otherwise, that the pressure would be unequal, the pressure below the obstruction being much less after the withdrawal of a small amount of fluid. In 1916 Queckenstedt, in a paper entitled "Zur Diagnose der Ruckenmarksgomuression," elaborated a method since carrying his name. With lumbar puncture alone, he observed that pressure on the jugular vein caused a rise of pressure of the spinal fluid and that where no obstruction existed no increase of pressure was noticeable. Supplementing careful neurological examinations, an attempt was now made, with the aid of X-Ray, to more accurately and precisely localize spinal cord tumors. Dandy, because of its ready absorption and its easy recognition on X-Ray examination, conceived the idea of injecting air into the spinal canal. The method described by Dandy is as follows: A syringe, with a rubber connection containing a two-way cock, is attached to the lumbar puncture needle, 10 cc. of fluid is aspirated from the spinal canal and an equal amount of air injected. The patient is recumbent at an angle of about fifty to sixty degrees, this position being assumed to allow the air to rise quickly in the spinal subarachnoid space and unless an obstruction exists to pass at once into the cranial subarachnoid space. When air reaches the head, the patient immediately complains of a fairly sharp pain, first in the posterior, then the middle and then the anterior part of the side of the head which is uppermost. Usually these successive localizations of air progress are noted by the patient. So constant and characteristic is this pain that it seems to be positive evidence where present that there is no complete block of the spinal canal. On the other hand, if the patient does not complain of pain in the head after a spinal injection there must be a spinal block. Single stereoscopic plates are made with the patient lying on his back. Obviating this excessive pain, and also some of the unfortunate results which have followed the use of air, Sicard introduced his lipiodol injection. Lipiodol is suspension of iodine in oil of poppy. There is no pain following this injection, but there are also objections. The material is very slowly absorbed and following its use after a certain time if the fluid has not been removed evidences of a mild aseptic meningitis are manifested. The technique of its administration was first described by Sicard, Paraf and Laplane. The injections may be made either by lumbar or cisternal puncture. According to Learmonth, the radiological appearances in cases where a tumor is present vary; first, in cases where block is complete the lower edge of the column of lipoidol may be straight; second, it may conform to the outline of the upper border of the tumor; third, some of the lipoidol may outline the tumor, while the remainder falls to the sacral culdesac; fourth, sometime minute shadows of lipoidol may be seen irregularly scattered throughout the length of the subarachnoid space above the block or culdesac. These correspond to the positions of calcareous plaques on the arachnoid mebrane.

Compared with tumors of the brain, tumors of the spinal cord, spinal roots and meninges are much less frequent, probably in the ratio of one to six. The proportion of operable tumors, however, is much greater and the results obtained are far more brilliant. They have been frequently overlooked and have been variously diagnosed, dependent on the peculiar pain and the localization of this pain.

It may be intermittent, weeks elapsing without pain. Certain movements may aggravate the pain, as movement in the neck and arms in cervical tumor. With the onset of paralysis pain may disappear. Pain associated with atrophy in root distribution of the limb should arouse a suspicion of tumor and with the exaggeration of the tendon reflexes of the lower limb, especially of association with a Babinski reflex on the same side as the pain.

Considerable time in many instances has elapsed since the initial symptoms have appeared, the average time in Spiller's and

Frazier's fourteen cases being two and three-fifth years.

As regards symptoms, pain is the first and most important. In thirteen of the fourteen Spiller's cases, there was pain, the single exception being an extra-dural tumor which at no time gave rise to pain. Spiller considers this symptom so conspicuous and important that he is surprised at the statement of Ernest Sachs who says that the majority of patients with spinal cord lesions do not have any severe pain during their illness and only an occasional case has any whatsoever. The pain generally is observed at a point comparable to the segment involved. It may be intermittent, weeks elapsing without pain. Certain movements may aggravates the pain, as movement in the neck and arm in cervical tumor. With the onset of paralysis pain may disappear. Pain associated with artophy in root distribution of the limb should arouse a suspicion of tumor and with the exaggeration of the tendon reflexes of the lower limb, especially of association with a Babinski reflex on the same side as the pain and atrophy of the upper limb, an operation is justified, particularly if there is a diminution of pain and temperature sensation in the lower limb of the opposite side.

The second important symptom preceding the motor disturbances is the subjective sensory symptom—numbness, stinging, burning, itching sensations. Three cycles in symptomatology have been described with these tumors; first, the root cycle; second, the Brown Sequard syndrome, and third, the paralysis of motor and sensory function. The typical Brown Sequard syndrome is as follows: Corresponding to the lesion and on the same side is a zone of cutaneous hyperesthesia lower segment type of parlysis and atrophy. On the same side below the lesion is an upper segment of paralysis, hyperesthesia of the skin, muscular sense and allied sensations, impaired reflex action at first lessened and then increased, the surface temperature normal, there is less of sensibility of the skin, pain and temperature; the muscle sense is normal, reflex action normal and the temperature same as that above the lesion. The typical Brown Sequard syndrome was not present in any of Spiller's cases, but he believes that if a careful examination could be made during the life history of all these tumors that at one time or another in the majority of cases a typical syndrome could be detected. You would expect the syndrome only when the lateral portion of the cord was involved. Contra-lateral tumors may confuse the picture, the tumor being present on one side but symptoms dependent on the other side because of the pressure of the cord on the opposite bony structure.

Where the sensory disturbances involve both sides the tumor is generally situated posteriorly. Motor symptoms are present in practically all cases. As a rule they appear late, in some instances as late as four years after the initial pain and generally occur after the tumor has reached a size sufficient to cause compression of the spinal cord.

Disturbances of vesical and rectal functions: The urinary bladder receives its nerve supply from the sympathetic and autonomic systems. The sympathetic fibers leave the cord by way of the anterior roots of the fourth and fifth lumbar nerves and the autonomic fibers from the second and third sacral segments. State of control of the sphincter muscles is under cerebral control and this control rests on information reaching the brain relative to distention of the bladder. These impulses enter the spinal cord from the pelvic nerve and are carried to the brain by short relays in the spinal column.

According to Learmonth, there is very little relation between the level of the tumor when it lies above the second sacral segment and its position relative to the cord and the occurrence of vesical symptoms. As these relay fibers become involved the reflex escapes the control of the cerebral cortex and the patient passes through the stage of nocturnal incontinence. Where there is a lesion involving the second, third or fourth sacral segment vesical symptoms may be early because both afferent and efferent fibers are concentrated in the roots and in the cord. First, the symptoms are irritative and then there may be paralysis. In lesions of the cauda equina the disturbance is not constant, due to possible escape of fibers passing from the viscus.

The rectal functions: The rectum has two sphincters, an interior of plain muscle and exterior of striped muscle. With a tumor above the level of the second sacral segment. The first disturbance of defecation is under cerebral control, the external sphincter is relaxed by cerebral control; the extra medullary pressure cuts off the external muscle from cerebral control when the growth involves the second, third and fourth sacral segments. The external sphincter may be paralyzed and incontinence result. In this connection, an interesting case reported by Dandy, presenting a new sign and symptom, may be mentioned. Signs of spinal cord compression appeared when the patient strained at stool and a numbness in both legs immediately after sneezing. These signs and symptoms were explained by sudden increase of intraspinous pressure above the tumor.

Segmental diagnosis: This includes a study of referred pain, sensory disturbances, muscle atrophy or impaired power and disturbed reflexes. In Frazier's case, pain was referred to the shoulder when the tumor was found involving the fourth, fifth and sixth cervical segments; upper extremities the eighth cervical and first and second thoracic; between the shoulders the eighth cervical and the first and second thoracic segments. Around the chest the third, fourth and fifth thoracic segments; epigastrium eighth to eleventh thoracic segments; the back fourth to the eleventh thoracic; to the leg from the cauda equina. In our case, probably the highest cervical cord tumor reported, pain was referred to the shoulder, pressure being exerted on the medulla oblongata and the upper cervical segment. She complained of pain in the left shoulder for five years, and the left shoulder became atrophied in the last three years. In this case Spiller considered it strange that the pain should be felt in the shoulder and upper limb when the tumor was confined to the first and second cervical segments. The third cervical segment supplies pain fibers to the greater part of the neck and the fourth to the upper part of the limb over the shoulder. The tumor high in the cord may have caused this referred pain by reason of circulatory disturbances or edemas. The level diagnosis should be made on the determination of impairment or loss of sensation.

Ocular phenomena are of localizing importance. They usually occur when the tumor involves the lower cervical and upper thoracic segments. In six of Spiller's cases, tumors found between the fourth cervical and the third thoracic presented ocular phenomena. Two instances of sweating of the face were reported and in one there was constant sweating over the right orbit. Even after careful localization there is a chance at operation for a tumor involving the anterior portion of the cord to be overlooked. Absence of root pain in the early stages usually points to the anterior localization.

Bilateral early pain usually points to a posterior tumor. The reflexes are generally normal above the tumor, absent or below normal where segments involved usually give rise to the reflexes and exaggerated below the lesion. The biceps reflex was absent where a tumor was found involving the level of the fourth cervical. Abdominal absent with tumor at level of the seventh thoracic and Achilles tendon absent when the tumor was found in the terminal cord and equina. As regards the Babinski, it is usually present and the tumor is most generally found on the side where the reflex is most prominent.

Disturbances in the movement of the diaphragn. In our case paralysis of half of the diaphragm was noted. In another case, when the tumor was found at the fourth cervical segment, movements of the diaphragm were disturbed. Oppenheim believes that in these tumors the diaphragm is involved less than we would expect and that probably the phrenic nerve is not wholly responsible for the functions of the diaphragm.

Pathology: In the series of four hundred cases collected by Schlesinger there were:

107	Sarcoma.
64	Tuberculoma.
14	Echinnococcus Cysts.
37	Neurofibroma.
28	Gumma.
27	Glioma and Gliosarcoma.
11	Myxoma.
11	Lipoma.
47	Miscellaneous.
24	Psammoma and Endothelioma.

Learmonth has made a very careful study of tumors listed as psammomas and endotheliomas, a growth similar to the one removed in our case and classes them under the heading of leptomeningioma. As regards their origin, Cushing considers the likelihood of a herniation of arachnoid. Females seem to be affected more than males. In Learmonth's series, 66 7-10 per cent in females and 33 3-10 per cent in males. In Frazier's series, 70 3-10 per cent were males and 29 7-10 per cent females and they occurred mainly in the middle and latter decades of life.

The following case was referred to Dr. Frazier of Philadelphia for operation. The clinical report of Drs. Spiller and Frazier is as follows:

REPORT OF CASE

History: Mrs. E. M., aged 47, for five years had complained of neuralgic pains in her left shoulder and to a less extent in her left arm. Atrophy of her left shoulder had progressed for the last three years. For the past two years she had difficulty in walking and now is unable to use her lower limbs. For the last three or four months she has noticed difficulty in breathing, and at the time of admission she was exceedingly dyspnePic and had to be propped up in bed. There was no vesical or rectal incontinence, but some difficulty in urination.

Examination: Over the right side of the chest upward to the second intercostal space she recognized pin-prick and ice water, but over the right side of the neck upward to about one inch from the lower border of the axilla she recognized neither pin-prick heat nor cold, but she recognized touch in this area as well as over the right side of the chest; i. e., she had sensory dissociation as high as the second or third cervical segment. The pupils were equal dilated and reacted promptly. The paralysis of the left upper limb was flaccid. The biceps and triceps tendon reflexes were prompt. They were a little prompter on the right probably because there was less atrophy on that side. Muscles of the arm and shouder, including the trapezius, were greatly wasted on the left; much more so than on the right.

The tongue had a marked fibrillary tremor on both sides and was wasted bilaterally. The masseters were normal. The soft palate was equally innervated.

The pulse had been as high as 138, but it was 120 for the last day or two.

The left lower limb was completely paralyzed with the exception of slight flexion in the toes. The left knee reflex was prompt and ankle clonus was distinct. The right Achilles' reflex was exaggerated, with ankle clonus. The right knee reflex was exaggerated. She had distinct power in the right lower limb.

Sensations of pain, heat and cold were distinctly impaired though not lost over the whole right side, trunk and lower limb; tactile sensation was fairly well preserved. The seventh and eighth nerves were not involved.

Examination suggested a tumor high in the cervical cord on the left side close to the medulla oblongata. The dissociation of sensation was of the cord type and was best explained by a lesion of the left anterolateral column at the highest cervical segment, even involving the medulla oblongata. It involved both hypoglossal and pneumogastric nerves.

There was no sympathetic paralysis of the eye. The left side of the diaphragm was paralyzed. Syringomyelia was possible, but from the history did not seem to be the more probable lesion.

Operation: On Nov. 17, 1921, a partial excision of the tumor was performed; also exploration of the upper cervical spine and region of the medulla.

Before the operation, the patient's condition was critical. She had total loss of function of the accessory respiratory muscles; half of the diaphragm was paralyzed, the other half functioning weakly. She was cyanosed and had had two attacks of respiratory collapse on the journey to the hospital.

Ether seemed to be contra-indicated. Before the patient was placed on the table, face down, nitrous oxide was started, giving as much oxygen as possible. Should the nitrous oxid anesthesia not prove practicable, chloroform was to be substituted. The anesthesia worked out most satisfactorily, the head being held constantly in the hands of a nurse who could change the position as directed.

The spinous process and laminae of the first, second and third cervical vertebrae were removed, with the posterior rim of the foramen magnum and the adjacent occipital bone for a distance of about 2.5 cm. As soon as the dural flaps were reflected a firm tumor of considerable dimensions was found, partly below and partly above the foramen magnum. The cord was well displaced to the right. The tumor occupied a left lateral position, and at the level of the foramen magnum there was a sharp indentation of the cord. Little by little the adhesions were freed, first around the lower pole, then working upward on either side, and finally on the posterior aspect. The adhesions were so firm and the depth of the tumor such that it was impossible to remove it whole. The lower third was excised first, without difficulty. Another horizontal section was made about two-thirds of the distance from the pole, and this second segment was removed without difficulty. While proceeding with the removal of the third section, respiratory failure occurred to which the patient succumbed. It was thought that perhaps by the use of the intratrachael tube the patient might be revived, but after artificial respiration was practiced for a few moments the circulation failed.

The tumor had the macroscopic appearance of a fibroma, but it was much more firm in its attachment to the surrounding tissue than is usual in tumors of the spinal cord. Had it been as readily removed as the majority of these tumors, there would have been no difficulty in its excision. The method of exposure was well planned, and no time was lost in the detection of the growth. There seemed to be no other way of removing the tumor than segmentally, and the operation could not have been modified except perhaps to have performed it in two stages, rather than one.

CONCLUSIONS

1. In 90 per cent of cases of spinal cord tumors the diagnosis and localization can be made after a careful history and neurological examination.

2. In 10 per cent of cases the determination of a subarachnoid block, careful examination of the spinal fluid, air and lipiodol injection may be necessary.

3. When the diagnosis and localization is assured surgical intervention is indicated.

4. Where there have been no degenerative changes in the cord complete restoration of the function may be expected.

DISCUSSION

R. Glenn Spurling: Dr. Bauldauf's comprehensive paper leaves little for me to say. It has been extremely interesting to me, and his case record is most unusual.

I would like to say a few words about the diagnosis in borderline cases, as these, of course, are the ones that give us the greatest trouble. It goes without saying that frank, outspoken spinal cord tumor is one of the easiest neurological diagnoses to make. On the other hand, I have had considerable difficulty in always being sure about the diagnosis in early cases before signs of transverse myelitis have appeared. The differential diagnosis to me is extremely interesting, particularly differentiation between myelitis, lateral scerosis and tumor. Extramedullary tumors usually offer less diagnostic difficulties than intramedullary ones. We may sometimes get the most bizarre picture in these intramedullary lesions; obviously because the pressure comes from invasion by the tumor, hence some of the fibers of the various tracts may escape while others are involved. I might illustrate this point with a case seen and operated upon about a year ago.

A girl was admitted to the hospital with the chief complaint of weakness of her legs and inability to walk. We first obtained a complete history, then tested her sensibility by the usual methods, pin-prick, heat and cold, and found no changes. She was then given a very careful neurological examination, particular attention being paid to the epicritic sensibility and muscle, bone and joint sense. We could map out a fairly definite impairment of the bone, muscle and joint sense below the umbilicus. Dr. J. W. Moore and I examined her at different times, and neither of us could check the other's findings. These examinations were repeated on several occasions, but my findings on alternate days never agreed, nor did those of Dr. Moore. We were certain that the patient had a spinal cord tumor, but where was it? We injected lipiodol and in that way secured perfect localization of the tumor, which was an intermedullary affair, ballooning the cord and obliterating the subarachnoid space. Dissection was made downward to the central canal of the cord, and everywhere we found soft tumor tissue characteristic of glioma. No attempt at complete removal was made.

Following the operation, the patient improved slowly. She was treated with radium by Dr. D. Y. Keith. She was admitted to the Kentucky Baptist Hospital, where Dr. Keith gave her a series of deep roentgenray treatments. Something over a year has now elapsed and with repeated roentgenray treatments, the girl has progressed fairly well. She is able to wait on tables at her father's restaurant. A rather queer feature about the case is that every now and then she will appear at my office, stating that she is sure "the thing is returning," after which Dr. Keith will give her an x-ray treatment, and she goes back to work. In about two months the procedure is repeated. The result in this case shows that we should not abandon even intramedullary spinal cord tumors.

Regarding diagnostic data in early cases where there is not complete blocking of the subarachnoid space. This is a question that was raised at the last meeting of the Society of Neurological Surgeons in St. Louis, "Which of the tests are we going to rely upon most for diagnosis?" Are we going to take the chemical examination of the spinal fluid as being the most important sign of subarachnoid block or the Quickenstedt test? Or shall we rely upon lipiodol injection? No one seemed to be clear which sign appeared first.

We have recently examined a series of brain tumors, and a certain number of spinal cord tumors, and gained the idea from our investigations that the chemistry of the fluid changed first. This offers the most significant evidence, but no definite deductions can be drawn. I have seen spinal cord tumors operated upon when there was no demonstrable change in the cerebrospinal fluid. These signs are helpful, but if negative we should not place too great significance upon them. Lipiodol injection is also a great help. Lipiodol is not a drug to be used routinely, however, as I am sure that it produces inflammatory changes. I have operated in three cases in which lipiodol was used, and in all three very definite evidence of meningitis was found. Whether this did the patients any harm or not I do not know, but the drug certainly produced irritative meningitis at the point where it remained in the subarachnoid space.

I have studied cases of subarachnoid block with double puncture and also with the Quickenstedt test. It seems to me, and I believe I am correct in saying, that double puncture offers few advantages over single puncture with jugular pressure, provided the chemistry and other data are accurately recorded. By this procedure, I believe the diagnosis of early subarachnoid block can be made just as well by single as by double puncture. Perhaps, however, the block cannot be so well localized wtih the single puncture.

Dr. Gardner and myself have recently seen an interesting case from the standpoint of partial subarachnoid block. A single puncture was done, and the pressure level was established at 160 mm. of spinal fluid. Jugular pressure caused the pressure to rise to 300 mm. The fall in pressure was delayed three times as long as the rising time, and each time the jugular pressure was repeated, the fluid would find a new high level. The patient had definite signs of transverse myelitis at the time the puncture was done, but within a week or ten days her sensory symptoms and signs had entirely subsided. I feel that she probably had acute myelitis, and I have no reason to doubt there was edema of the cord with partial obliteration of the subarachnoid space that caused these interesting pressure readings.

Owsley Grant: I would like to have Dr. Baldauf tell us something about the bladder symptoms in cases such as he has described. Do bladder symptoms develop no matter where the cord lesion is located, or is it necessary that the obstruction be in the sacral or lower lumbar region? Does the block produce the same type of symptoms as noted in tabes dorsalis, for instance, higher in the cord? Do the bladder symptoms offer any assistance in localization of the lesion?

J. Rowan Morrison: I am glad Dr. Baldauf brought the subject of spinal cord tumors to our attention. The methods he has described seem to offer some improvement in the diagnosis and localization of such lesions, and once the diagnosis is made in many of these cases there is hope for relief, because surgery of the spinal column seems to offer prospects of benefit.

W. E. Gardner: I have enjoyed Dr. Baldauf's paper very much, it has been most interesting and instructive. It is the first paper on the diagnosis of spinal cord tumors read before this society for a number of years. I recall that five or six years ago Dr. J. J. Moren presented a paper on the subject, and I was very much interested at that time.

I was glad to hear Dr. Baldauf open his paper with the statement that the history of the case and the neurological examination are the most important points to be borne in mind always in the diagnosis of spinal cord tumors. Dandy corroborates this in the articles he has recently published and to which Dr. Baldauf referred. He makes the statement that 90 per cent of cases can be diagnosed by a careful history and neurological examination; that it is only necessary to use air or lipiodol injections in the remaining 10 per cent of cases to complete the diagnosis. I think that is an important thing to be borne in mind, as indicated by Dr. Thompson and Dr. Spurling, because there is some danger attached to lipiodol injections. It is not a method to be used routinely in every case simply on suspicion before other careful examinations have been made. Quite frequently aseptic meningitis has been produced, in some cases with high fever for two weeks, after the use of lipiodol. It has been reported that lipiodol is retained for a long period. Roentgenograms have been made eight months after the injection of lipiodol which showed the drug still present. There is always the possibility of cystic formation and subarachnoid inflammatory processes developing from the retained lipiodol.

I am very much interested in the value of the Queckenstedt test in cases of suspected spinal block which was referred to by Dr. Spurling. In those cases in which the pressure by the water manometer of the spinal fluid rises rapidly on compression of the jugular veins and returns promptly to the original level and the spinal fluid is clear and does not coagulate within a short time after its withdrawal, I believe we are safe in saying there is no spinal block. This method, along with careful neurological examination, is to be used in all cases, repeatedly perhaps, before we attempt either injection of air or lipiodol. Dandy was the first to use injection of air according to the method described by Dr. Baldauf, and it seems there was very little inflammatory reaction or discomfort following the use of air. In the event there was spinal block there was usually no pain about the point of the injection of air. Even larger quantities of air may be injected then to get the benefit of a more definite shadow in roentgen-ray examination for confirmation of the diagnosis.

The patient referred to by Dr. Spurling whom we both saw in consultation with another physician, and whom I have not seen since the Quickenstedt test was made, was an extremely interesting type of case, and at the time of puncture very suggestive of spinal block on account of the fluid returning so slowly after pressure was removed from the external jugular. We were very much surprised to hear that the young lady after making this test had improved so markedly that she was able to return to her work. It occurred to me that possibly this may be a temporary amelioration of the symptoms. The fact must be considered, as mentioned by Dr. Spurling, that she may have had toxic myelitis with some edema producing temporary block, but I am still inclined to believe that this case, one of two or three seen recently (in two of which spinal block was excluded), is one that may even yet present symptoms that are more positive of spinal block.

The methods of injecting air and lipiodol are valuable in helping us to arrive at a more sharp line of level, and great assistance to the surgeon in knowing where to operate and perhaps be able to remove the tumor by single laminectomy, whereas if a definite line of level is not well established possibly it might sometime be necessary to remove two or three laminae in which the reaction is greater from shock and perhaps the strength of the spinal column may be impaired to some extent. While these methods of diagnosis are important, yet they must be considered as stated by Mixter and Ayer in some of their experimental studies, in the same relation that we consider the Wassermann reaction in syphilis, the basal metabolism in goiter and other diagnostic tests, i. e., they are valuable, but we should never lose sight of the fundamental fact that in the diagnosis of any disease a careful history and physical examination are of the greatest importance, and are, in fact, the basis of all diagnosis.

Leon K. Baldauf (in closing): The patient referred to in my paper was operated upon by Dr. Frazier several years ago. She was referred to Dr. Frazier with the diagnosis of tumor probably involving the second or third cervical segment, but after Dr. Spiller examined the patient (and evidently at that time he examined all of Dr. Frazier's cases before operation), he concluded that the tumor was much higher in the cord. He came to this conclusion from a symptom which we had overlooked; that is twitching of the tongue and atrophy of both sides of the tongue. The woman was almost moribund when she left here, an ambulance met her at the train and she was operated upon the evening after her arrival, but unfortunately they probably attempted too much, and Dr. Frazier believed afterward if he had performed the operation in two stages, simply opening the bony cavity and relieving pressure as the first step and then probably removing part of the tumor later, the result might have been different.

Learnmonth has recently investigated this subject quite thoroughly. Dr. Ayer wrote me to be sure and read Learnmonth's article published in the British Journal of Surgery. He recently reviewed all the cases reported in the Mayo clinic.

In regard to vesical symptoms: Quite a variety of symptoms have been described that might be expected from lesions involving the nervous system as applied to the urinary bladder, but no definite conclusions have been reached. After examining the histories of the cases in the Mayo Clinic, even where the tumor was located in the second sacral the special vesical symptoms gave no idea as to localization. The tumor may be anywhere between the second sacral and the foramen magnum. Sometimes even when the tumor is found in the cauda equina the vesical symptoms are not very definitely localized because in the region of the cauda equina there is quite a large cavity and the tumor may not exert any pressure on the nerves.

As to the injection of lipidol: In the American Journal of the Medical Sciences there was recently described a series of cases where lipiodol had been injected. The conclusion was reached that in a large percentage of these cases there was an increase in the cellular elements, but as no micro-organisms were found it was concluded there was only an absorption meningitis. Dandy and others claim that lipiodol should be removed after operation. In some cases three or four years after lipiodol injection iodine has been found in the cul de sac.

STENOSIS OF ALIMENTARY CANAL; CASE REPORTS.*

By Garland Sherrill, A. M., M. D., F. A. C. S., Louisville

Your indulgence is asked this evening for the presentation of this group of cases, in which the pathology, as well as the age and clinical history of the patients, varies so greatly. In each case, however, the outstanding feature bringing it to observation was stenosis or obstruction of the gastrointestinal tract.

So many causative factors enter into the production of stenosis of the alimentary canal, and the symptoms vary so greatly in stenosis in different portions of the tract, that an entire volume would be necessary to cover the subject. It is my purpose to call attention to certain salient features which these cases open for consideration.

They are all of the progressive type of obstruction, and yet they finally become acute and demand immediate and prompt attention. In each type the prompt recognition of the character and gravity of the condition does not always occur. This means that in many cases recognition of the necessity for prompt surgical intervention is postponed until the outcome is doubtful or perhaps fatal. The results obtained in this series show the value of the prompt institution of surgical measures in such cases.

Case I. The patient before you is Miss N., aged 38 years who was operated upon May 4th, 1927, for acute intestinal obstruction. She gave the history of numerous attacks of acute abdominal distention with severe colicky pains persisting for several hours. Relief was usually obtained from enemata, but occasionally hypodermatic injections of morphine became necessary. Her last attack began April 30th, the pains were cramping in type and quite severe. Relief was obtained by the administration of morphine and she slept some the following day. She then began purging and vomiting, pain increased in intensity, causing her to roll about in bed. No fever attended any of her attacks, and there were no symptoms referable to the genito-urinary apparatus.

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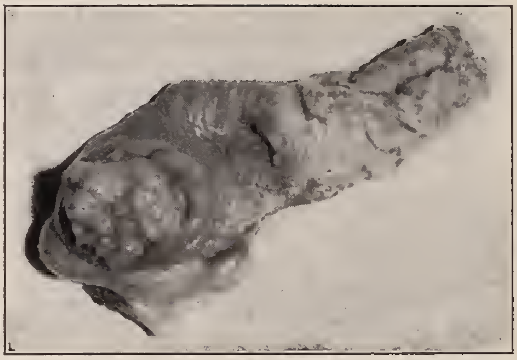
*Read before the Jefferson County Medical Society.

When first seen by me she had some distension of the abdomen. There was one feature particularly characteristic of the type of obstruction from which she suffered, namely a marked distension of the intestinal coils. The patient was in intense agony from pain and the intestinal coils were very prominent. The pain in stenosis of this type is quite different from other forms of pain due to obstruction, and the prominence of the intestinal coils is more marked. If the obstruction is complete, vomiting frequently occurs; if the obstruction is high vomiting appears early. If the obstruction is high, abdominal distension is slight; if the obstruction is low, distension is great.

Physical examination: Temperature normal, pulse 90, respirations 24. General examination negative: heart normal in position and size. The abdomen shows considerable gaseous distension. Colon readily outlined and much dilated. Some borborygmus noted. Pelvic examination made through the rectum. Uterus small, normal in position, and gives no evidence of pathology. No obstruction could be felt in the rectum. There was no doubt, however, that a mechanical ileus was present in the abdomen. Naturally we suspected the possibility of the lesion which presented, but it was by no means certain. It was thought more that likely from the history that there was a band partially obstructing the lumen of the intestine accompanied by inflammation and the formation of a large amount of gas. There was no history of the passage of blood from the rectum. No microscopic examination had been made for occult blood in the fecal discharges.

At operation we found a band-like constriction obstructing the intestinal lumen which resembled a tape tied around the intestine. As is frequently the case in adenocarcinoma of the intestinal canal, this constriction was found to lie in the sigmoid colon, which was rather redundant and necessitated a decision as to the best procedure to adopt. As the obstruction was acute and the necessity of relief urgent, we concluded to make an anastomosis first. Accordingly an anastomosis was quickly accomplished between loops of the sigmoid, handling the structures in a delicate manner with the thought that if it became very much involved the operation could be completed and the resection done a few days later. Moreover, if it became necessary at any time a fecal fistula could be established and still have the anastomosis present. The knuckle of colon containing the neoplasm was readily resected after the anastomosis had been completed. The pathologist reports adenocarcinoma of the sigmoid colon.

Case 1. No. 1—Adenocarcinoma of Sigmoid Colon. Exterior View. Note band like construction.



Case 1. No. 2—Adenocarcinoma of Intestine. View from lumen.

The patient made an uneventful recovery from the operation and has since gained about ten pounds in weight.

Case II. The next patient was a man aged 48 years referred to me by Dr. Voyles, of New Albany, Indiana. The condition found at operation may be appreciated by examination of the specimens and photographs exhibited. The roentgenogram showed a constriction almost identical with the one shown in the previous case. There was a constriction of the colon near the sigmoid.

The history was of short duration. The patient said he had suffered slight disturbances of digestion for which he took some "dyspeptic tablets" over a period of several months. There was slight gaseous distension but no pain nor discomfort, and he took the tablets not on the advice of any physician.

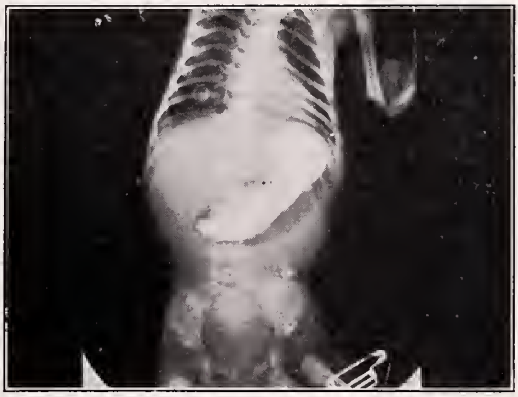
During the latter part of December, 1926, the patient consulted several physicians, one of whom said he thought the trouble was due to appendicitis but gave no further reasons for making this diagnosis. Subsequently another physician was consulted who made a roentgen-ray examination of the intestinal tract and reported that he could not find an obstruction although he was quite certain one existed. The patient applied to Dr. Voyles about two weeks prior to operation.

The history showed that about a year previously the patient had an attack of influenza and dated most of his symptoms from that period. It seems rather unlikely that there was any connection between the influenza and his subsequent condition. At the time of my first observation there was some gaseous distension, eructations, evidence of a cardiac lesion, the patient was very nervous, had lost flesh, etc. A blood count showed leucocytes 9,800, with 45 per cent polymorphonuclears; erythrocytes 3,400,000. Occult blood was found in the fecal discharge, there was fresh blood visible once or twice and this was thought to be from a few small hemorrhoids present. Later he had a rather sharp hemorrhage.

February 24th, 1927. Pre-operative diagnosis uncertain, intestinal malignancy suspected. Complete diagnosis adenocarcinoma of the sigmoid colon. I want to emphasize the fact that in these cases we are not always able to make a positive clinical diagnosis of adenocarcinoma, even if the stenosis is complete, which it was not in this instance.

At operation a portion of the colon including the tumor, and also the appendix were removed. The colon was sutured and inverted, and the ileum anastomosed to the side of the transverse colon. The patient remained in the hospital four weeks. Shortly after dismissal he returned to work. We are not sure the man is cured, but in cases of this character after removal of the involved intestine and affected lymph glands better results are secured than in any other portion of the alimentary canal.

I have one woman whom I first saw in her fifth month of utcrogestation when she developed acute intestinal obstruction. The majority of these patients are not seen until acute obstruction develops. This woman was operated upon as I have described, the colon and a number of involved lymph glands being removed on August 25th, 1920. The pathological report showed adenocarcinoma of the colon. Pregnancy continued uninterruptedly and she was delivered of a living child at term. She developed diastasis of the abdominal muscles during pregnancy and a hernia resulted. One year later she was delivered of another child. The question arose at the time whether we should perform Caesarean section and close the hernia, but it was decided to allow delivery to proceed in the natural way and repair the hernia later. Two years and one day after the first operation the hernia was successfully repaired, and at the same time bilateral salpingo-oophorectomy for inflammation was performed. A small lymph gland, was sent to Dr. Stuart Graves for examination who reported there was no evidence of neoplasm in lymph node. The woman is today living in good health and taking care of her tuberculous husband. I do not mean to say she is cured of her cancer, but if we can secure seven years prolongation of life in intestinal carcinoma which has progrssed to complete stenosis, the benefits of surgery must not be forgotten. We must not look upon these cancer cases as absolutely hopeless.


Case 4. No. 1—Hypertrophic pyloric stenosis. Plate shows stasis.

I have another patient living ten years after resection of the intestine for carcinoma. I wrote his physician about eight years after the operation and received a reply that the patient had remained well and expected to marry his second wife within a few weeks.

In another case the characteristic features were different from those ordinarily seen. Cholecystostomy was performed upon a man beyond sixty years of age for the relief of gall bladder disease. He was very ill at the time but made a satisfactory recovery and the gall bladder continued to drain. At that time exploration disclosed no evidence of malignancy of the liver or any of the other abdominal viscera. More than a year later I was again called to see the patient in an attack of acute intestinal obstruction. He had suffered a similar attack in Florida some time previously and under enemata and other treatment relief was obtained. In this last attack, however, no relief was obtained. His colon was at least six inches in diameter, the distension being tremendous. Obstruction was complete there being no passage of gas or feces.

At operation a condition was found which was very interesting to me because in my experience it is extremely rare: The small intestine was flaccid and the colon enormously distended from the cecum to the sigmoid. The constriction was located in the sigmoid colon. The small intestine, however, was entirely flaccid. Before locating the constriction in the colon it was necessary to withdraw by tapping a large amount of fluid and gas. When the colon had collapsed the opening thus made was closed. The ileocecal valve was entirely competent, nothing could be forced backward into the small intestine, and nothing could be forced beyond the point of constriction in the colon.

It has been shown conclusively that between two constrictions in the intestinal canal there is formation of poisonous products, histamine, etc., which are absorbed and cause serious systemic symptoms, showing that acute obstruction calls for immediate relief.

In this case nodules were found in the left extremity of the liver showing evidence of metastasis. The patient seriously objected to a fecal fistula, therefore anastomosis was performed which fortunately relieved the obstruction. The man as yet has not been informed of the nature of his disease, but I think within a short time his condition will be explained to him. Of course the family was told at the time of operation that the trouble was malignant. He is still living in comparative comfort.

Case III. A man of 51 first came under my observation early in April, 1927. Roentgenograms made previously showed that he had complete obstruction at the pyloric end of the stomach. The patient said he had been fairly healthy all his life. Had typhoid fever at 29, and had occasional attacks of lumbago. For some years he had "sour stomach" about an hour after eating, especially following a large meal. No other symptoms of importance.

Five weeks prior to the time I saw him he complained of gaseous eructations. One week before he came to me he began to vomit bitter, sour material within half an hour after eating, frequently with an offensive odor. Water was occasionally regurgitated. His appetite had been good. Sometimes the vomitus consisted of food eaten two days previously. He usually became comfortable after vomiting, and could then take and retain a small amount of food. He complained of no pain whatever.

Physical examination: Patient slender, florid type, practically bald, skin smooth. Sclera showed slight icteric change. Teeth fair condition, throat negative. No glandular involvement, no enlargement of the thyroid. Chest flat, excursions free, pulmonary sounds normal. There was a mitral regurgitant murmur heard most distinctly with first sound, but compensation was complete. Apex beat displaced slightly to the left. There was a palpable mass (size of small egg) in pyloric region which had not been discovered by those who had previously examined him. Physical examination otherwise negative.

Case 4. No. 2—Child at tenth week; five weeks after operation.

Roentgen-ray examination by Drs. Enfield and Fugate: "Examination of stomach after barium meal shows marked, almost complete, obstruction of the pylorous. Outline of stomach at this point being smooth and sharp, together with the contour of remainder of stomach, suggests benign obstruction of long standing due to gradual 'closing in' of scar tissue from an old duodenal ulcer. There is nothing to suggest malignancy. The stomach itself appears normal, except for dilatation and hypertrophy. There is no obstruction at the cardia."

Upon first examination of this man my conclusion was that he had cancer rather than ulcer, first because of his age, and second the presence of the palpable mass. However, neither of these would positively exclude ulcer so it was merely a surmise on my part that he had cancer rather than ulcer. Another factor was that he complained of less pain than is usual in ulcer cases.

Operation, April 11th.: Pylorectomy and gastroenterostomy. The tissues were excised for some distance on each side of the ulcer and posterior gastroenterostomy was completed. The ulcer was located on the posterior surface of the lesser curvature of the stomach; it was circumscribed, hard, indurated, about one inch in diameter. The entire mass removed was about three and a half inches in length. The operative procedure was essentially a median epigastric resection of the pylorus and part of the stomach including the ulcer and also a portion of the duodenum and adjacent glands, and posterior gastroenterostomy. The patient left the hospital ten days after operation and is in good condition at this time.

Laboratory report by Dr. Stuart Graves: "Section of the stomach wall shows infiltrating masses of glandular epithelium with mitoses. Microscopical diagnosis: adenocarcinoma. Sections from the lymph glands shows atypical masses of glandular epithelium infiltrating the gland. Mitoses frequent. Moderate leucocytic reaction, chiefly polymorphonuclears."

It is interesting to note that this patient complained of no symptoms until shortly prior to the development of stenosis. From the roentgenogram it would appear the arrangement was such that when contraction occurred the duodenum was pressed tightly over the pyloric opening. Occlusion perhaps came from spasm of the pylorus and the fact that the duodenum fitted closely over the end of the stomach like a valve. That is perhaps why food was retained and not forced through under manipulation when the examination was made by Drs. Enfield and Fugate.

The question must be considered, what shall be the further treatment of this patient as regards the use of radium or the roentgenray? I am somewhat doubtful of the efficacy of either of these agents in gastric cancer with glandular enlargement in the neighborhood, and yet I have seen so many things occur in cancer that were not what we expected to see, that I do not know what to say. The prognosis is grave in this particular case.

The operation described was performed under ether, notwithstanding the fact that surgeons are now doing many operations on the stomach under local anesthesia with satisfaction and very little pain.

Case IV—The last group of cases includes hypertrophic stenosis of the pylorus in infants. I have seen and operated upon quite a number of these cases. The baby as a rule has no trouble until the fourth or fifth week and then suddenly rejects all kinds of food. The first thought is that the food is not agreeing with the child or the formula is wrong. Changes in food and formulae have no effect. the child becomes emaciated, dehydrated and has the appearance of an old man. In nearly every one of these cases a rather firm mass is felt on examination in the pyloric region. The mass feels more like a thumb than anything else I can describe.

The pictures being shown on the screen represent a baby weighing at the fifth week of life seven pounds and three ounces. The diagnosis of hypertrophic pyloric stenosis was easily made. Two weeks after a successful Ramstedt operation the child weighed ten pounds and three ounces. During the following week he gained two and a half pounds. The operation was performed about six months ago. I have a letter from the family physician stating that the child now weighs twenty-seven pounds.

Dr. P. F. Barbour has referred to me two or three cases of this kind for operation, one as early as 1916, and in the same year another baby with pyloric stenosis was referred to me by Dr. McKamey, of New Albany, Ind. Formerly the operation of Mikulicz was performed in these cases with a fair degree of success. The patient sent me by Dr. McKamey was the first one upon whom I performed the Ramstedt operation. The child made an excellent recovery. One of the patients referred by Dr. Barbour was greatly emaciated and dehydrated and succumbed to the operation.

The point I wish to particularly emphasize in connection with these cases is that operation should be performed early, in fact, as soon as the diagnosis can be made, before emaciation and dehydration have become extreme. The Ramstedt procedure has been described many times. It is simple and attended with little danger. I recall that in one instance incision was accidentally extended into the duodenum, but the child finally recovered.

In operating upon these children there is no necessity of administering a general anesthetic, as was formerly done. All these operations are now performed under local anesthesia.

DISCUSSION

George A. Hendon: The question of intestinal obstruction is very important on account of the fact that there is what might be termed an illegitimate mortality. Under all the improved methods of operative procedure the mortality ranges from 50 to 60 per cent, which is entirely out of proportion to the difficulties, unaviodable complications and dangers of the operation. I think it is entirely dependent on the fact that too much time is wasted in arriving at conclusions. I am speaking now of intestinal obstruction lower in the tract than the pylorus.

There are two kinds of intestinal obstruction, one is acute and the other chronic. In chronic cases the obstruction is rarely ever recognized until it becomes acute. For that reason people are not operated upon during the chronicity of their obstruction, surgery being delayed until acute obsruction is produced. By that time vital resistance has been so reduced that the patients rarely survive the operation. It is an interesting fact that this applies to practically all varieties of obstruction. One exception to that rule might be in patients who have been subjected to previous abdominal operations and where unforunately surgery has caused the formation of bands with stenosis. In that particular class of cases we find chronic obstruction which is always of the stenotic variety, and this type of chronic obstruction can be diagnosed I believe before the condition becomes acute if we take into consideration the importance and significance of the symptoms presented. When people suffer from intermittent accumulations of gas and intermittent attacks of reversed peristalsis there can be present but one thing, and that is chronic obstruction.

Another thing to be taken into consideration about chronic obstruction is that it is always incomplete until finally acute obstruction ensues. Therefore we may divide obstruction into complete and incomplete, or into acute and chronic. It has been said, I believe with some measure of truth, that any individual past middle life who is steadily losing weight and has constipation has incomplete obstruction.

The great practical point in regard to obstruction is early diagnosis. The methods of operative procedure and the different varieties of operations have been so competely and thoroughly established that they present very little difficulty. I think if greater effort were directed toward obtaining information concerning the early symptoms we would be able to make an earlier diagnosis. The group of cases Dr. Sherrill has presented illustrates that point very remarkably, i. e., that the main object is to arrive at an early diagnosis, and to do that we should always consider the accumulation of gas as the first symptom. However, I believe it would be a good idea to eliminate the word gas from our vocabulary because it is apt to create confusion in our minds. Instead of saying gas or gaseous distention if we will use the term reversed peristalsis, then center on that object and make an effort to account for the reversed peristalsis, we will be led more directly to consideration of the cause of the reversal of the current. I have also heard it said, but do not know how much truth there is in the statement, that the roentgen-ray rarely discloses or presents sufficient evidence on which to make a diagnosis of incomplete obstruction or stenosis of chronic obstruction. That may or may not be true. We know that the conditions called intestinal indigestion and accumulations of gas are due to interruption of the fecal current either partially or completely, and when we look at the situation from that point of view we can diagnose these incomplete obstructions. In patients who have arrived at the acute stage, even after opening the abdomen, it is a serious proposition to decide just what to do. In many cases perhaps the surgeon in his zeal to do a typical operation really does too much. In other words, the patient waits too long before applying to the surgeon, and the surgeon does too much when he performs the operation. I believe it is a great advantage to perform most operations of obstruction in fractional stages. Of course, that is where our judgment plays an important part. In the majority of cases I believe it is wise to do resection or some modification of the Mikulicz operation first, instead of doing resection and attempting an anastomosis at the same time..

There is a little device that has served me excellently in operating on dubious cases, that is by using the appendix as a provisional rectum where we expect to have distension and paresis following the operation. The appendix is brought through the upper or lower angle of the wound and the end of it removed, a catheter is then placed through the appendix into the cecum thus providing a vent for the escape of gas. It also affords a splendid means by which fluids may be introduced into the intestine, and serves beautifully for the administration of purgatives for prompt action. Sulphate of magnesium injected through the catheter into the large intestine, if there is any resiliency left, will produce prompt avacuation of the intestinal contents. I think this is a measure that will serve a very excellent purpose in the management of these cases.

In dealing with acute obstruction we have formerly waited for the appearance of distension, when we ought to realize the fact that distension does not occur until poisons have been generated in the obstructed intestines and systemic absorption has occurred causing relaxation of the abdominal muscles. After distension has become marked the dangers of operation are increased. Distension does not occur as early in acute intestinal obstruction as we formerly thought, and I do not believe it should be considered as one of the cardinal symptoms of obstruction. There are sufficient evidences of intestinal obstruction to enable us to recognize the condition before distension occurs, and these are definitely presented within twelve hours after the onset. We know that the time limit is more important in dealing with obstruction than any other single factor in the case. I believe if we would forget the so-called classical symptoms that we have been taught to depend upon in the diagnosis of intestinal obstruction, we would be able to arrive at an earlier diagnosis and by prompt surgical intervention be able to reduce the mortality to 10%, which is realy a legitimate mortality.

Louis Frank: Dr. Sherrill has presented a very interesting series of cases. If we exclude the cases of hypertrophic stenosis of the pylorus, all the others he has described were obstruction due to cencer.

I think it makes quite a difference exactly where the disease is located and the type of the disease whether or not acute obstruction occurs without which the patient with cancer of the bowel goes for a long time and presents symptoms not of obstruction but symptoms due to intestinal tract disturbances when he comes to us for treatment.

In the case of the young woman Dr. Sherrill has reported, the growth was typical of that type which as a rule causes acute obstruction. I have frequently seen this type of obstruction due to adeno-carcinoma of the descending colon. The cases I have observed have all been acute obstruction in which there had been a history of constipation and incomplete obstruction previously.

In the other type of growth, the large cauliflower tumor as represented by the specimen exhibited, the situation is somewhat different. I do not recall having seen such a growth situated in the ileocecal region with compentcy of the ileocecal value. On the contrary, those I have seen and had an opportunity to make roentgen-ray study of, have shown undue patency of the ileocoecal valve due to infiltration of the valve structures, and easily demonstratrabl by bismuth enema. We have operated upon a number of these cases, some of them being recognized from roentgen-ray studies, some being operated upon for peritonitis, the result of erosion through the intestinal mucosa. I do not remember, however, to have seen a case of complete obstruction with carcinoma in this region. The cauliflower mass we often see in the hepatic flexure, in the transverse colon and the descending colon, without obstruction having been a symptom. The growth does not infiltrate the bowel in its circumference as the other type which partakes of scirrhous cancer. These patients usually pass some blood with the fecal discharges without any obstructive symptoms, and in the operations we have performed I do not recall having noted any marked dilatation of the colon. The cauliflower growth, which always occupies quite a large area of the intestinal wall, may produce erosion but obstruction does not become absolute. In annular carcinoma, however, there is well developed obstruction.

As to the most appropriate procedure in the latter type of cases: My own observation has been that in these annular obstructions it is better to simply perform a colostomy or enterostomy and allow the patient to recover from the obstructive symptoms before attempting to do anything else. My preference has always been for a two-stage operation where the growth has been located in the lower segment of the large intestine. In the cases with previous obstruction there is always intoxication from absorption of poisonous products, and it would seem advisable to first secure proper drainage as the initial step and perform radical operation at a later period. This is my belief and in my hands the two-stage operation seems to have given the patient the best opportunity for recovery. Where there is a large cauliflower mass low in the right side, and where the growth can be completely removed, the one-stage operation may be indicated. My preference here has always been in doing the anastomosis with removal of the growth to insert a tube proximally for the passage of gas. This procedure has, it seems to me, given the best opportunity for recovery. It is important in all these cases, whether a one-stage or two-stage operation is undertaken, to first explore the abdomen in a search for metastases, noting particularly the liver. However, it is a fact that glandular involvement of the mesentery may be present, and yet in many instances the operation may be followed by permanent cure due to the fact that the glandular enlargement was inflammatory and not malignant. Fortunately for the patient, these growths metastasize slowly. Moreover, as stated, many of the glandular enlargements encountered are inflammatory and not cancerous in origin.

Another point of importance may be mentioned: If we are going to operate with any expectation of curing the patient, we must also examine the pelvis in all cases to determine whether there are implants in that region.

We have in the hospital now two patients with large cancerous growths of the colon. My experience has been such that I believe all these patients, even in the latter stages of the disease, should be subjected to operation. Both of these tumors could have been removed probably a short time ago. In both cases there is now glandular involvment of the mesentery of the small intestine from direct contact absolutely excluding radical operation. In one of the cases almost the entire abdomen is involved, yet the growth could probably have been safely removed a few months ago. Neither of these patients had complete obstruction and were admitted to the hospital for radical operation. My belief has been and still is that in the early stage of carcinoma of the intestinal tract there is no symptom-complex by which the disease can be certainly recognized. Therefore I think it may at times be advisable to explore the abdomen where obscure symptoms are present, even in the absence of a palpable tumor, but where there is present microscopic or occult blood in the fecal discharge. All such patients who have reached the cancer age should certainly be carefully investigated, and if the diagnosis cannot be clarified in one sitting examination should be repeated in a few months. The majority of these patients should be subjected to operation. So far as physical symptoms are concerned, it is especially true of cancer involving the stomach and intestinal tract that we cannot always feel a tumor. The growth may be so situated, high under the ribs, that it is a physical impossibility to feel it, but by correlating the symptoms with the roentgen-ray findings we will be able to complete the diagnosis in many instances at an early period. Most of the patients I have seen with extensive growths in the large intestine have complained of diarrhea with the passage of a large quantity of mucus. Very few of them have presented a mass in the early stages, because, as we know, a mass cannot usually be detected until later in the course of the disease. The presence of blood in the fecal discharge may or may not be an early stage. As a rule the symptoms are obscure and the disease does not make itself manifest in the early stages. However, we may hope for earlier diagnosis of cancer of the intestinal tract as more thorough roentgen-ray studies are made, and this is particularly true of malignancy of the stomach.

Irvin Abell: Dr. Sherrill has presented some extremely interesting cases; and since the speakers who have preceded me have discussed the question of intestinal obstruction, particularly that type caused by cancer, I shall confine my few remarks to hypertrophic pyloric stenosis, reviewing my own expereince with it.

The first case I had was referred to me for operation about twenty years ago. We performed the classical Mikulicz plastic operation and the patient succumbed. In the next two cases we did a posterior gastroenterostomy without attempting to do any work on the pylorus itself. Posterior gastroenterostomy on a child five to eight weeks old is a rather difficult procedure, yet it was accomplished in both these children successfuly and both recovered. One of the patients, now fifteen years old, lives in the city, and for the last two years I have been promising myself to ask the parents for the privilege of making a roentgen-ray study of the present situation, as I would like to know what has happened to the pylorus and what has happened to the gastroenterostomy.

In the cases more recently observed we have performed the Ramstedt operation. It is a very simple procedure, as Dr. Sherrill has said, one that is readily accomplished, and produces the minimum amount of trauma. It is quite true that many children presenting symptoms of hypertrophic pyloric stenosis do make a recovery under the administration of atrophine or some similar form of antispasmodic treatment, and I think it requires a fine point of judgment to determine just when such treatment should be abandoned and surgical measures instituted.

In my own experience the mortality has been about 40% from the Ramstedt operation during the fifteen years we have used it. I believe that mortality has been largely due to operating upon these children without proper preparation. It is true that patients with cancerous growths, such as Dr. Sherrill has designated, and particularly those involving the sigmoid, practically never come under observation until the obstruction becomes acute and must be operated upon as an emergency. Hypetrophic stenosis of the pylorus, however, is never an emergency. If one regards such a lesion as an emergency and operates upon these children when they are dehydrated the larger percentage of them will succumb, whereas if they are given blood transfusions, saline solution and glucose subcutaneously, etc., until the dehydration is overcome—and this can usually be accomplished within a period of two to four days—the vast majority of them will then be able to withstand the Ramstedt operation and make a recovery. In my experience the deaths we have had have all been in dehydrated children. I do not believe any child who was given blood transfusions and glucose until the dehydration was overcome has failed to make a recovery, and this despite the fact that in two instances by accident an opening was made in the mucosa of the duodenum. This was due to over-anxiety on our part to be certain that the hypertrophied ring had been thoroughly divided. In using the scissors a minute opening was made in the duodenal mucosa in two instances. In both of these cases the opening was closed by suture. In one healing occurred by first intention and the child had no symptoms. In the second child there was some leakage on the eighth day after operaton. This continued for a few days when the opening closed spontaneously and the child made a good recovery.

D. Y. Keith: In maligancy of the intestinal tract the amount of dilatation and the amount of irregularity around the margins of the growth should be marked, and the clinical signs show on the roentgenogram. Anyone who has had clinical and surgical experience would be almost certain to make the diagnosis of malignancy under such circumstances.

The point made by Dr. Sherrill is important that many patients with gastric malignancy have symptoms for only a short time before an almost complete obstruction which brings them to the physician. I have seen patients with complete obstruction as shown by operation, who had no symptoms referable to the stomach until a short time before. Some years ago I saw with Dr. Hendon a man from Elizabethtown who had lost flesh and gave every evidence of malignancy, but he had no gastric symptoms until a month before. He had complete obstruction with massive glandular involvement.

With reference to the case of the young woman exhibited by Dr. Sherrill, in whom there was a competency of the ileocecal valve: In these cases roentgenray examination with plain plate, without barium, will give valuable information as the colon is filled with gas and will frequently define the tumor location.

In cases where there is marked gaseous distension of the colon with obstruction, in making a roentgenray examination we insist that barium not be given by mouth. It is better to attempt to locate the lesion by barium enemata. As soon as the barium reaches the obstruction the diagnosis can be made and no more barium is allowed to flow above the stricture. I have seen cases where it required a week to get the barium removed from above the obstructive tumor when the barium was given by mouth or where a large barium enema was given.

I think nearly all these cases can be diagnosed by making a plain roentgenographic plate if one is willing to take the necessary time, and is adept at reading gas shadows, and follow with a small barium enema. In this way you locate the stricture from above and from below.

James W. Bruce: I wish to speak only concerning the question of hypertrophic pyloric stenosis: In all these cases the importance of early diagnosis, before the patient has become dehydrated, and prompt surgical treatment after the diagnosis is perfected, cannot be too strongly emphasized. These cases are usually noted during the first six weeks of life, although symptoms may not appear until the child is three months old.

If the physician is not called to see the child until late, and marked dehydration has already occurred, preoperative treatment by blood transfusions, the administration of saline solution, glucose, etc., will generally overcome the dehydration sufficiently to permit the child to be successfully operated upon.

Post-operative attention and feeding must not be neglected. As a rule within a few days after operation the child may be safely placed on the proper diet for its age, but the physicion should carefully supervise the feeding for at least a month or two.

J. Garland Sherrill (in closing): I thank the gentlemen for their discussion. I do not believe there is very much difference in our views on this subject. Cases of chronic intestinal obstruction which suddenly become acute are serious lesions, and undoubtedly Dr. Frank's contention is correct that in cases of this type the first effort of the surgeon should be to relieve the obstruction and save the patient's life. We must use judgment in estimating the ability of the patient to withstand operation. We must consider this fact, however, that some patients after being relieved of the obstruction will fail to return for further treatment.

I wish to thank Dr. Keith for the information given us on the question of determining the condition of the colon by means of the plain roentgenographic plate.

The point I wished to make in reporting the series of cases was that, especially in malignancy of the intestinal tract with acute obstruction, our remedial measures must be applied early enough to save the patient's life.

SCARLET FEVER.*

By James W. Bruce, Louisville.

For the past two years scarlet fever immunization and treatment have received a great deal of attention. On account of the brilliant results in work along the same lines in diphtheria it had been hoped and expected that equally good results would be obtained in scarlet fever. It will be worth while, therefore, to review our knowledge and experience in this work and see just how much has actually been accomplished.

The Dick Test

This is a test for susceptibility to scarlet fever. It consists of the injection of a small amount of specific scarlet fever streptococcus toxin intradermally. If the person is immune, there will be enough antitoxin in his blood to neutralize the injected toxin and no reaction will occur. If he is susceptible, there will not be enough antitoxin in his blood to neutralize the injected toxin, and a local reaction will occur, due to the corrosive action of the toxin. This reaction shows itself as an area of reddening and induration which usually reaches its height in eighteen to twenty-four hours and has generally disappeared by forty-eight hours. The corrosive action of streptococcus toxin is less violent than diphtheria toxin and the duration of the local reaction is shorter. False reactions due to protein sensitiveness may occur and it is impossible to distinguish them from true reactions in most cases.

A convenient way of reading the Dick test is as follows: An area of erythemia 1 cm. in diameter +, 2 cm. in diameter ++, 3 cm. 3 cm. +++, more than 3 cm. ++++.

The test is easy to do and results are definite and easy to read. However, results unfortunately do not always check with clinical observations. If a person contracts scarlet fever, he must be susceptible to it, otherwise he would not contract it. Since the Dick test is a test of susceptibility, it should always be positive when a person first contracts scarlet fever and should become negative during the course of the disease as the person develops immunity. This change from positive to negative usually takes place by the 8th day of the disease. However, many cases are reported where persons with negative Dick tests developed scarlet fever. Lees reported 48 cases in which 15 had negative Dick tests when the disease began (1). Silcock reported an equal number (2). Debre reported 19 cases of which 10 had negative Dick tests at the onset of the disease (3). Certainly with these figures in mind we cannot say that a negative Dick test is conclusive assurance of immunity to sacret fever.

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*Read before the Louisville Medico-Chirurgical Society and the Shelby County Medical Society.

It is a well known fact that one attack of scarlet fever confers immunity against subsequent attacks. Exceptions to this rule are very rare. It would be supposed that following scarlet fever the Dick test would always be negative. However, Lees found 11% positive Dick tests in 66 persons who had previously had scarlet fever (1), and Nesbit reported 40% positive tests in school children who gave a history of having had the disease (4).

If, then, we find so many instances where the Dick test is positive in persons who have had scarlet fever, and negative in persons who have just contracted it, what value can we place on the test and how can we explain its failure to give us accurate information as to the immunity of our patients.

Its failures can be explained in two ways: (1) Variability in strength of Dick solutions obtained from different manufacturers. Toomey demonstrated this in the following way: He took 52 persons who had tested 4+ with solution obtained from the Dicks. These people were then tested with test solution from two other manufacturers. One solution gave 100% positive tests and much stronger reactions than the Dick solution had. The other gave only 67% positive tests (5). (2) The other explanation of variability is that there may be several strains of scarlet fever streptococci and a person may have immunity against one strain but not another. This also would explain the well known clinical observation that a person may be intimately exposed repeatedly to scarlet fever without taking it and then finally contract the diseases.

I do not wish to appear entirely pessimistic about the Dick test, because in the majority of cases it does give correct information as to immunity to scarlet fever. However, there are so many cases where it runs counter to clinical observation that we cannot accept it in its present state of perfection as final. It is not nearly as dependable as the Schick test for diphtheria.

ACTIVE IMMUNIZATION

Gabritschewski (6) first used active immunization in 1907 in Russia. He grew streptococci from the throats of scarlet fever patients in broth. The culture was then killed by heat and injected. By this method he injected both streptococcus vaccine and toxin and produced active immunity. Of course, at the time he did his work the streptococcus was not recognized as the cause of scarlet fever. However, his vaccine was widely used in Russia in controlling epidemies.

Since the discovery by the Dicks in 1923 of the streptococcus as the cause of scarlet fever, much work has been done on active immunization. Until the past year all work had been done with toxin suspended in broth and from which the streptococci had been filtered. The doses used of this toxic filtrate have varied from 250 to 60,000 skin test doses. The chief problems encountered were that too small doses did not produce immunity while large doses produced severe reactions. This led to the recommendation by the Scarlet Fever Committee of a series of injections of graduated dosage—500 skin test doses, 1,500, 5,000, 15,000 and 20,000. This method has been widely used in this country during the past year and there are several serious objections to it:

(1) Five injections at weekly intervals are tedious and irksome to patients.

(2) Severe reactions take place very frequently. These reactions are much more frequent and severe in children over 5 years of age than under 5 years. They consist of local inflammation, fever, pain in the abdomen, vomiting and scarlet rash. Some reactions are more severe than many cases of scarlet fever.

The duration of immunity is not known, as the method has not been under observation long enough. Toomey (7) immunized 70 persons with toxic filtrate and observed them for 15 months at the end of which time they all still had negative Dick tests.

In 1926, Larson (8) reported a method of active immunization by which he mixed 2% sodium ricinoleate (castor oil soap) with toxic filtrate. The sodium ricinoleate in some way detoxifies the scarlet fever toxin so that large doses (3 and 4,000 skin test doses) can be given without producing severe reactions. It was hoped that in this way active immunity might be obtained by one injection. Although it is too early yet to know the duration of immunity produced in this way, it is generally considered that 2, or better 3 injections should be given in order to obtain immunity of long duration. There has recently been put on the market a killed broth culture of scarlet fever streptococcus made after the method of Gabritschewski with 2% sodium ricinoleate added to it. The injection of this material is not followed by severe reactions. The material contains one billion killed streptococci per c. cm. The amount of toxin in the mixture is not measured. From our present knowledge, 3 injections of this material offer more hope of successful active immunization than any other method at present available. Since our experience with the Dick test has not been satisfactory we have not got a conclusive way of checking results to see if immunity has been obtained.

PASSIVE IMMUNIZATION

I only mention passive immunization with scarlet fever antitoxin to disapprove of it. There are many objections to it:

(1) The immunity lasts only 3 or 4 weeks, and leaves the patient just as susceptible as before injection.

(2) Serum sickness which usually follows these injections is often more severe than scarlet fever.

(3) It is surprising how few people will contract scarlet fever even though contact has been very close.

(4) The patient may be sensitized to future injections of horse serum.

For these reasons I believe it is much better to isolate persons who have been in contact with scarlet fever and keep them under close observation, and give large therapeutic doses of antitoxin to any who develop the disease.

TREATMENT

There is quite general agreement on the efficiency of scarlet fever antitoxin. It is very effective. I do not believe, however, that it should be given to every patient with scarlet fever. The serum sickness which usually follows its administration is worse than a mild case of scarlet fever. Fortunately scarlet fever usually has a sudden onset so that by the time the rash is out and a diagnosis can be made, we can determine whether the case will be severe or not. If serum is given, it should be given immediately, as soon as the diagnosis is made, in full therapeutic dose.

Complications are somewhat less likely to occur after antitoxin, but they frequently do occur. Those who expect to avoid complications by giving antitoxin will be disappointed. It should be remembered that complications are much less frequent in cases where tonsils and adenoids have been removed. The presence or absence of tonsils and adenoids, therefore, has considerable weight in determining whether or not to give antitoxin in cases of moderate severity.

Serum sickness may take one of several forms:

(1) Anaphylactic shock. Fortunately this is very rare—it occurs within a few minutes after injection and is apt to be fatal.

(2) Reaction may occur in the first 12 or 24 hours after injection consisting of local inflammation and fever, malaise, etc., lasting a day or two.

(3) A very distressing form of serum sickness comes on 5 to 7 days after injection and may consist only of urticaria, but is also often characterized by severe joint pains or by fever and prostration lasting several days.

Serum sickness following injection or scarlet fever antitoxin is more frequent and much more severe than that following other kinds of serum, e. g., diphtheria, meningococcus, tetanus, etc. I do not know any explanation of this fact.

CONCLUSIONS

(1) The Dick test is positive in people who have had scarlet fever and negative in people who have just contracted the disease sufficiently often for us to believe that results obtained from it are unreliable. However, it is the only test we have for determining immunity to scarlet fever and in the majority of cases gives correct information. It is not nearly as reliable as the Schick test for diphtheria.

(2) The five injection series recommended by the Scarlet Fever Committee is tedious to the patient and gives severe reactions in many cases. The Larson material, because of its milder reactions and fewer injections, will probably prove more practical.

(3) Passive immunization by injection of small doses of antitoxin is not recommended.

(4) Scarlet fever antitoxin is an effective weapon and should be used in moderate or severe cases of scarlet fever.

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DISCUSSION

Gavin Fulton: This paper has given me more than the usual amount of pleasure in its rendition, because of the fact that Dr. Bruce has expressed my own ideas on the subject of scarlet fever absolutely. It is gratifying to know this, because there is so much controversy regarding the treatment, active immunization, prophylactic immunization, etc. at the present time. I agree with Dr. Bruce that passive immunization should not be used.

The point I would particularly like to mention in connection with Dr. Bruce's paper and his views on the subject, is the attitude assumed by the health authorities regarding school children. Those of us who are family or house doctors come into contact with the public in a different way than specialists in medicine. I have not treated any scarlet fever for a number of years on account of my obstetric work. Suppose the health officer sends a card urging that all school children be tested by the Dick method for scarlet fever, and if found susceptible that prophylaxis serum be administered. What must we do about it? I have all the way through been absolutely opposed to doing this. In the first place the Dick test is not accurate, we cannot definitely determine whether this or that child is or is not susceptible to scarlet fever by that method, it gives us no knowledge whether or not the child will develop the disease next week or at some future date. Moreover, we are left in the position of offering to the parents a prophylactic treatment which we know is not prophylactic, and the resulting serum sickness may do a great deal of harm. By advocating these measures the health authorities are educating the public to demand them of doctors, and if we do not comply mothers have the idea we are endangering the lives of their children. It is a very serious problem. Some of these children who are giving prophylactic serum will be sensitized against horse serum and in the event its administration became necesarry afterward serious trouble might follow.

I do not believe in active immunization against scarlet fever as in vogue at the present time. I would not be willing to subject my patient to the five injection method. In nearly all cases there is a severe reaction and serum sickness and even then, as Dr. Bruce has said, we have no assurance that we have really accomplished anything.

I am reminded of what occurred in St. Louis in 1919 when they gave prophylactic injections of diphtheria antitoxin to several hundred children. Many of these patients later contracted diphtheria and died from anaphylaxis after the injection of antitoxin. If I am not mistaken there were forty or fifty deaths from anaphylaxis.

I am entirely in accord with the method advocated by Dr. Bruce in the treatment of scarlet fever. I believe curative serum should be administered in all cases. I am not in favor of using prophylactic injections in school children, and the public shuld not be educated by the health authorities to demand this method of procedure.

Oscar O. Miller: I have enjoyed Dr. Bruce's paper very much. It seems that in recent years scarlet fever has become somewhat attenuated so that we do not see the virulent type that occurred forty or fifty years ago. Whether this is due to an increase in resistance on the part of the people or to a lessened virulence of the organism is not determinable. The complications of scarlet fever are so distressing that it seems to me any procedure that offers an opportunity to prevent the disease or reduce the complications should be acceptable.

Dr. Bruce makes the statement that children under five years react less severely than those over five. The logical procedure, then, would be, if immunization is of any value, to attack this problem in the pre-school age. The tendency today is to try to have all corrective work done in children before they enter school, so they will be less likely to incur disabilities and infectious diseases while attending the public schools, and thus prevent the loss of time which these affections entail.

I have been in the habit of immunizing children at Waverly Hill Sanatorium as they are admitted, in order to lessen the opportunity of an epidemic and to render an addition service to the child with the idea of enhancing his resistance. We have had some severe reactions where we used the five dose method.

With the advent of the new preparation of larsen, sodium ricinoleate, I think we should the more energetically continue to protect these children by securing active immunization. I believe it would be better to abandon the Dick test and immunize these children to give them protection until they develop a natural immunity to the disease.

Crittenden Joyes (Fort Worth, Texas): As I am engaged in special practice, I do not see much scarlet fever, but quite a number of these patients come under my observation because of complications which develop later.

For two years we have had a very efficient public health officer in Fort Worth, a full-time health officer who secured the position on the recommendation of the United States Public Health Service. The board of health issues a weekly letter or bulletin which is mailed to every physician in the city regularly keeping them advised of health conditions as they exist at the time. The bulletins contain the recommendation that physicians do not give any orders or instructions to the public schools, but it is urged repeatedly that they give toxin-antitoxin to immunize school children against diphtheria.

As to scarlet fever immunization it is frankly stated that the board has no recommendation to make, that there is probably just as much danger in the procedure as there is benefit, and they are not certain there is any benefit. The day before I left Ft. Worth a representative of one of the large manufacturing drug houses came into the office and my associate, who is a general practitioner, asked him what was the present status of scarlet fever immunization. His reply was: "doctor, I would advise you not to fool with scarlet fever immunization at the present time; from all we can learn from our own researches and from conversation with physicians in three states whom I visit about once a month, I would suggest you do nothing about the matter at present."

I thought this might be of some interest in connection with the splendid paper presented by Dr. Bruce.

J. Rowan Morrison: I certainly enjoyed Dr. Bruce's paper, and wish to agree with practically everything he said. He has reviewed our present knowledge regarding scarlet fever in an admirable way.

We were all very hopeful, following the work of the Dicks and others, that we were going to overcome scarlet fever in the same measure that we have dihptheria. This work, as I understand from my own information and from the observation of others, as stated by Dr. Bruce, has not accomplished the desired results. However, we are still hopeful that, from the tremendous amount of work that is being done, the problem will eventually be solved.

I would like to ask Dr. Bruce what percentage of children and adults are immune to scarlet fever.

James W. Bruce (in closing): I certainly appreciate the generous discussion of my paper, and will answer such of the questions as I can. In the first place, it may be interesting to state that at the last meeting of the American Medical Associaion at Washington, D. C., I took occasion to ask twelve or fourteen prominent pediatrists from different parts of the country what they were doing about scarlet fever immunization, and they all said: "we are not pushing it, we are waiting to see how things develop, we do not feel sure about it yet."

The Dick test is the feature we think has failed as much if not more than anything else because so many children who are manifestly immune to scarlet fever as they have just recovered from an attack and cannot contract it again, still they have a positive Dick test. We know that such a child is not susceptible, so that makes us feel that the Dick test is not conclusive. On the other hand, the figures I gave in my paper show many cases where the first day the child becomes ill with scarlet fever he has a negative Dick test, which would indicate that he is immune to the disease. So I think it has been definitely shown that the Dick test is by no means conclusive.

Now about the matter of having the Dick test made in schools: If the parents want it done I can see no particular objection to it, but if the Dick test is negative that does not mean that the child will not contract scarlet fever, so why have it done? It only lulls the parent into a false sense of security. On the other hand, if the Dick test is positive the child may be susceptible to scarlet fever, or he may not be, we cannot be certain about it.

This brings us to consideration of the question of active immunization. When the Scarlet Fever Committee, composed as it is of the most prominent authorities in the country on this disease, began recommending active immunization by the series of five doses of the toxin, I started using it. I immunized probably thirty or more children last year. I finally ceased giving it because the children were having such terrible reactions. Within an hour or two the mother would telephone me in terror that the child was vomiting, had pain in the abdomen, fever, etc. and when I reached the house I found the child about as sick as it would be with scarlet fever. I first ceased giving it to children over five years of age, and then quit it entirely.

Then the two per cent sodium ricinoleate appeared. Reactions are not so severe following the injection of this preparation. However, it is such a new product we cannot say yet whether it is going to work or not. It is being advocated very enthusiastically, particularly by men in the northwest where Larson lives and they believe there is a great future for it. It can be given in large doses without any serious reaction.

The other preparation mentioned which has recently been placed on the market is simply a killed broth culture of streptococcus with two per cent sodium ricinoleate added. As the streptococci have been killed by heat there is little danger of toxic effect. This preparation seems to me to possess many advantages. The question is, shall we recommend it to our patients in its present state of development, or shall we wait three or four years until we know more about it? Personally, I cannot see that there is any disadvantage in giving it. The children do not have severe reactions and we certainly do them no harm by giving it, nor do we sensitize them against horse serum because there is no horse serum in it. It is simply broth and streptococcus killed by heating, and I can see no danger in making the injections. While I have not whole-heartedly recommended the use of this material, I do tell the people that it offers the best hope, and where they seem much worried I have given it. I have given so far about six or eight series of injections and think it is something from which we are going to get some good results. In institutions such as Dr. Miller represents I believe this would be a very good thing to use. Larson hoped when he first introduced the ricinoleate preparation that he would be able to immunize the child with one injection, but found he could not do so. Larson himself is now recommending two or three injections of this material.

I would like to say a few words about delayed reactions that I have observed, and I am sure all of you have seen the same thing happen after scarlet fever antitoxin. Last spring I had occasion to give a child scarlet fever antitoxin. The fever was promptly reduced and in forty-eight hours the child seemed to be perfectly well. On the sixth day she had a chill, her temperature rose to 105° F., her pulse went to 200, her respirations were 70 or 80 to the minute, and she was one of the sickest children I think I have ever seen. It was simply a delayed reaction such as sometimes develops after the use of scarlet fever antitoxin. This was the most intense reaction I have seen, but have seen other children who were very sick. At the same time I think scarlet fever antitoxin should be given in all bad cases of scarlet fever, but if the tonsils and adenoids have been removed there is less occasion for giving it. Why scarlet fever antitoxin should give greater reaction than other antitoxins I do not knw.

My impression is that the board of health merely has the right to request people to have the Dick test made for susceptibility to scarlet fever, but they have no authority to enforce it. They may use all the propaganda they please, but they cannot force people to have the Dick test made. On the other hand, vacinnation against smallpox is compulsory under the law and the authorities can insist upon it.

Dr. Morrison raised the question about the percentage of immunity to scarlet fever. Zingher, who is now dead, but who was associated with Park in the New York board of health, did the Dick test on thousands of school children, and states that the percentage of immunity which he found for the different age groups ran practically parallel to diphtheria. We know that at birth the child is practically always immune. At the age of eighteen months about 70 per cent are susceptible. After that they gradually acquire immunity, so by the time they are five years old the percentage is about fifty-fifty, and by the time they are twenty-one years of age only about 10 to 12 per cent are susceptible to the disease. They acquire immunity as they grow older.

Oral Administration of Pollen.—Personal experience has convinced Black that it would seem justifiable to conclude that the oral administration of pollen extract offers a satisfactory means of securing protection against pollen, and is free of the objectionable features of hypodermic therapy.

PERTUSSIS.*

By Philip F. Barbour, M. D., Louisville.

Pertussis merits more attention than is commonly accorded it, not only for the reason that it is a long and troublesome disease, but because there is a mortality which ranks high amongst the contagious diseases in children.

The cause of the disease was discovered not many years ago by Bordet and Gengou working independently. It is a small bacillus of the influenza type, which is found in pure cultures in the early days of the disease; but later is overgrown by the mixed infections, so that it is found with difficulty in the sputum when the whooping stage has been reached. It has been claimed that there are at least two strains of the organism which do not mutually agglutinate, which may help to explain the different experiences with the vaccine treatment.

These organisms seem to attack by preference the ciliated epithelium of the trachea and upper bronchi. The ciliated cells are destroyed and the tough mucus remains attached to the lining of the trachea and bronchi and can be removed only by the severe paroxysmal cough.

There are three stages to this disease. The first stage, the period of incubation, lasts from 10 to 14 days and is characterized by a persistently increasing severe cough. At the end of two weeks the "whooping" or pertussis stage is reached which lasts from four to eight weeks depending upon the season of the year. During this stage is developed the characteristic paroxyms of coughing followed by a "whoop" and very frequently by expulsion of a very tough thick mucus and also by vomiting of the contents of the stomach. The height of severity of the disease is reached by the fourth week, persisting for two weeks then beginning to decline, when the paroxysms become less severe and farther apart. The third stage may last from four to six weeks. The second and last stages persist longer during winter than during the mild summer time.

The period of incubation is usually from ten to fourteen days, though it may be as short as three days. The invasion is usually with some malaise, sometimes but not always there is a slight elevation of temperature to below 100°, and always a noticeable loss of appetite. As a rule these symptoms are overlooked and it is the cough which first arouses attention. The early coughs are heard at night, when they are more frequent and more severe than in the day time. There are rarely any coryzal symptoms, as would occur in what we term an ordinary cold. The coughing spells become more frequent and more severe; the child must sit up in bed to cough; the face becomes red and the eyes suffused and the whole countenance becomes swollen and duskier.

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*Read before the Louisville Medico-Chirurgical Society.

The pretussive stage lasts from ten days to two weeks with a gradually increasing severity in the cough until the characteristic "whoop" is heard and the diagnosis is proven. However, many contacts and exposures have been made in that two weeks and we should perfect our diagnostic technic so as to be able, in the great majority of cases, to make an accurate diagnosis before that time. Also the earlier the treatment can be begun the more the relief that may be given.

It is impossible more than to guess at a diagnosis for the first few days, but soon there will be heard a type of cough which should awake our definite suspicion. There are two types of spasmodic cough. One is the staccato cough, cough, pause, cough, cough, pause, repeated several times. The other, which is more common, is a succession of coughs for six or more times without an inspiration. The first cough is with the full power of the lungs, the rest dwindle away until there is no more available air for the cough. This is the time that the "whoop" should occur when that stage of the disease has been reached.

Many different things will bring on a coughing spell, such as sudden draughts or even noises. Depressing the back of the tongue, as in examining the throat, is usually very satisfactory in bringing on a typical paroxysm of coughing. However, there are undoubted cases of pertussis which never at any time really "whoop." This is especially true of the very young baby. It may merely turn blue at the lips and finger nails and gasp for breath. It must be closely watched day and night for death lies close to such attacks.

Another symptom is a very important one not only early but months later. I refer to the bronchial lymphatic glands which are demonstrably enlarged before the whooping stage and often persist for weeks, and may most easily become enlarged again from undue exposure or unusual weather. They are probably the cause of the aggravating cough and possible whooping which are so frequently heard during a winter following an attack of pertussis. Resistance percussion will easily demonstrate a widened mediastinal space both anteriorly and posteriorly.

The blood picture is quite characteristic even early and consists of a marked leucocytosis up to 25000 or 30000 with a predominating lymphocytosis of 60% or more. If there are complications the polymorphonuclears will be relatively increased for the time. Occasionally the blood picture has been misleading in that the counts have been lower than expected. The other respiratory diseases, with the exception of pneumonia, rather run to a leucopenia.

After the whooping stage has set in the chief danger lies in a complicating bronchopneumonia. If it were not for the fact that pertussis is far more frequent in the summer months. the mortality from broncho-pneumonia would be much higher. The young baby has little ability to handle such a process and dies promptly. The prevention of such a complication lies in the utmost protection against contacts with then pneumococcus and guarding against any untoward hygienic environment. The violent paroxysms of coughing may have other sequelæ such as subconjunctival hemorrhages or very rarely retinal hemorrhage. Deafness may result from such accidents back of the internal ear. A few cases of paralysis from injury to the gray matter reveal the possibilities of the severe congestion. Permanent injuries to the heart are very rare though there is always some dilatation of the right heart. In delicate children cyanosis and weakness following a violent spell of coughing may force the child to rest in bed, though the average patient recovers very promptly after a seizure. There has been some reference to acute intestinal disturbances complicating pertussis, but the writer has never met with this, though whooping cough is so much more frequent in hot weather.

That pertussis is a forerunner of tuberculosis is well known and is proven by mortuary statistics. Two factors are very clear. The ciliated epithelium is definitely demoralized if not destroyed. The epithelial cells of the bronchi are cast off and replaced by new immature cells with low powers of resistance. The bronchial lymph glands are swollen and hyperemic for weeks. Their function of filtering out bacteria is in abeyance, Nature's wall of resistance is broken through. When pertussis occurs in a tuberculosis household extra precautions and care are obligatory.

The treatment of pertussis has narrowed down practically to the use of vaccines, though certain drugs have proven their worth. Many are disappointed with the results of vaccine therapy because they expect immediate and dramatic results such as are obtained by the sera in diphtheria and scarlet fever. Unfortunately there is no serum available for pertussis and the vaccine can develop immunity only after many days. There is a wide divergence of opinion as to the value of vaccines. Some advocate only the freshly made vaccines. The dosage was too small at first. The question of the interval is also *sub judica.* But increasing dosage up to five billion killed bacteria are being more generally used and preferably at three day intervals. If the theory of the opsonic index is correct, we should wait nearly 72 hours before repeating a dose. Unfortunately there are laboratory difficulties in securing and keeping growths of the Bordet Gengou bacillus, and the test for agglutination in the blood is not always available. As m ntioned earlier the bacillus of pertussis is not readily recovered by the time the second stage has been reached. It is always by then a mixed infection of many strains and a mixed vaccine is indicated. It is probable that these other organisms are responsible for the continuance of the symptoms. In fact the administration of the pure strain of the organism as a prophylactic has not been at all reliable in its results, though certainly justifiable in asylums or in especially debilitated babies. The early disappearance of the Bordet Gengou bacillus explains also the claim of Rachford and others that the period of quarantine is unnecessarily prolonged.

Several new remedies have been added to the list of agents for the relief of the severity of the paroxysms, but outside of the vaccine these have only a symptomatic effect. One of the best remedies is a combination of bromide and antipyrine given in as large doses as can be tolerated. It does prolong the intervals and make the paroxysms less severe. It is well to stop the bromide treatment every three of four days and push quinine for a day or two then return to the bromide. Apparently the break in the bromide treatment gives added value to the medicine. When hemorrhage occurs from the nose or eye it is well to add atropin. Ordinarily this drug produces so much dryness of the throat that it is of little help in the treatment of this disease, but it seems to be very beneficial where hemorrhage occurs. Another agent which has proven useful is ether. It seems to the writer that ether dissolved in oil and introduced into the rectum gives relief in severe cases. This method of administration of ether is free from certain dangers which inhere in its administration per derma. A deep abscess in the muscles is not a very pleasant complication, but when administered by the rectum there are no signs of irritation of the mucosa. When the breath gives off the fumes of ether the symptoms begin to subside. Benzoylbenzoate has also proved helpful, but it ought not to be administered in the milk as it may cause a distaste for food which will be hard to overcome.

When the paroxysms are very frequent at night, then opiates are indicated and the codein salts seem to be better suited to these cases. It may be given for a while until the child gets some physical relief, but the chief objection to opium, as also to belladonna, is that it causes the mucosa to become so dry that it is difficult for the child to expectorate the tough mucus. Sometimes it is helpful to give ipecac with the alkalies so that the mucus is more easily expectorated. Some children are helped by steam and moisture in the room at night though one cannot speak dogmatically on this point. I have not had very much confidence in the use of the various greases over the chest. When vomiting needs relief a very tight abdominal binder to bring pressure on the stomach is often helpful. These children will need some food after severe vomiting and their meals will have to be at irregular times.

There is no question that these cases are very much better off in the open air, but it is very important that the air be free from dust and dirt. Also there should be no draughts on the child. Any condition which will aggravate an ordinary bronchitis will intensify whooping cough.

The x-ray treatment of pertussis was highly lauded at first and several commendatory articles have appeared favoring its use. However, experience does not seem to have borne out such claims. Three exposures were given at two day intervals. It seems to the essayist that the x-ray may prove of undoubted benefit in those cases where the mediastinal spaces are unduly enlarged and mechanically press on the bronchi. The size of the glands would be reduced and absorption promoted, and probably the prolonged third stage of the disease might be shortened. It hardly seems probable that x-ray could have much influence on the growth of bacteria in the walls of the trachea and bronchi as they are so deep-seated. It may be, however, that some valuable aid may develop from x-ray therapy.

The period of quarantine is still a matter of dispute. However, most city boards of health require eight weeks from the beginning of the cough. Under proper vaccine treatment this period may safely be reduced. After the paroxysms have stopped there is no longer so much danger of contagion. Many men believe that the period of contagion is over very early, but it does not as yet seem safe to expose a child until the "whooping has entirely ceased.

DISCUSSION

J. Rowan Morrison: Dr. Barbour has given us a splendid paper on an interesting subject, because the things we know the least about always interest us most. The question of early diagnosis in pertussis is very important, but it is difficult to decide in the early stages whether cough depends upon simple coryza, or whether the child actually has pertussis. Every delicate child should be kept away from other children when pertussis is prevalent in the neighborhood. In some cases it is almost impossible in the early stages to make the diagnosis.

So far as blood tests are concerned, if there is marked and persistent leucocytosis and also lymphocytosis, we are practically certain of the diagnosis; but the absence of these phenomena is no proof that the child has not pertussis. I have used pertussis vaccine and am simply "up a tree" about it, as I do not know whether it does any good or not.

The question of vaccine therapy in pertussis has been carefully studied in a large number of hospital cases, and the majority of pediatrists seem to think it is beneficial. Now and then, however, statistics are presented showing that vaccine is worthless. I use vaccine and try to give it in every case as early as possible after the diagnosis is made.

J. Garland Sherrill: The feature about pertussis that has always impressed me is the fact that it has been treated so lightly by the medical profession, and proper steps have not been taken to prevent communication of the disease from one person to another. I doubt very much, even at the present time, whether the law is being enforced to prevent spread of the disease. Many times groups of children have been observed playing together where one or two of them had a typical cough and nothing was done about keeping them separated.

In closing request Dr. Barbour to give us the rationale of the ether treatment of pertussis.

Adolph O. Pfingst: The subject of pertussis is always interesting. I have wondered whether the "whooping" in these cases is due to the presence of mucus in the bronchi and trachea or whether it can be attributed to some central disturbance. It is natural to assume that where the trachea and bronchi are filled with mucus the child, in an endeavor to obtain more oxygen, exhausts both tidal and residual air in an extraordinary effort at inspiration and that the rapid intake of air produces the "whoop." However, when we consider that certain complications arise in whooping cough similar to those in exanthematous disease of children the possibility of a toxic action on the nervous system becomes apparent. We know that the eyes are occasionally involved in pertussis, though not frequently. Optic neuritis has been seen as a complication of the disease and cases have been reported where some of the intrinsic muscles have been involved. Iritis has also been observed as complication. I believe that it is a fair assumption that the "whoop" is caused by a toxic involvement of the pneumogastric or recurrent laryngeal branch.

I would ask the essayist in closing to tell us something about pertussin, as to the nature of the agent and as to its efficiency.

John W. Moore: I am especially intersted in the treatment of pertussis, particularly what Dr. Barbour said about the use of benzyl benzoate. This is a favorite remedy for oral administration in pertussis among certain authorities. It is also given in coughs due to other causes. The fact seems to have been overlooked that when benzyl benzoate comes into contact with the gastric juice it is immediately converted into benzoic acid.

We do not know how ether acts, but it seems to be beneficial in the treatment of pertussis. I wish Dr. Barbour would tell us whether he has used the Japanese drug ephedrine in treating pertussis.

Philip F. Barbour (in closing): Pertussin is merely the trade name of a syrup prepared from thyme. Its action is somewhat similar to ipecac in softening and faciliating the expulsion of mucus from the trachea.

I have seen many adults who had pertussis, some of them very severe cases. However, I think most adults have acquired an immunity to the disease through a mild attack earlier in life, just as immunity is acquired to scarlet fever, diphtheria and other diseases.

I cannot see how it would be possible for vaccine to produce epilepsy. It is possible, however, for a child with pertussis to have paroxysms of coughing so violent as to produce hemorrhage into the brain. I have treated a large number of cases of pertussis with vaccine and have seen no bad results. I have never seen epilepsy develop following treatment. I have seen children paralyzed from pertussis, yet they all recovered after a time. If hemorrhage occurs in certain parts of the brain, I can see no reason why it should not produce epilepsy. Congestion is sometimes so marked in pertussis as to cause bleeding from the eyes, nose and ears, and there seems no reason why hemorrhage should should not also occur in the brain.

My experience with pertussis vaccine as a prophylactic has not been satisfactory. I have given it several times as a prophylactic, and these children had more severe attacks than the other children in the family. I know most authorities recommend the prophylactic use of vaccine in hospitals and asylums, and good results have been reported.

The Squibb people claim there are at least two strains of the Bordet-Gengou bacillus. I do not know whether this has been confirmed or not. If there are two strains, that would explain why beneficial results are secured from vaccine in one case and not in another. I have often given vaccine in the evening and the mother would telephone the next morning that the child had a good night's sleep for the first time in two weeks, no other medication having been used. I have seen many cases in which after ten days or two weeks treatment with vaccine the patients would be almost entirely relieved.

One question was raised in the paper about which I wanted some advice, and that is the frequency of the dose in vaccine therapy. What has been the experience of men giving vaccines in general? Some give vaccine every day or every other day. Personally I believe that vaccine should not be adminstered oftener than every three days.

I do not know how to explain the action of ether. Some one tried it several years ago by intramuscular administration and good results were obtained. Unfortunately, however, some of the patients developed painful abscesses. After that ether was given by the rectum and was found perfectly innocuous and just as beneficial in many cases. I have used it frequently with splendid success. Iodine in some form has also given good results.

Every delicate and feeble child should be kept absolutely away from everybody with any kind of cough. Pertussis in delicate children is certain to cripple them in some way even if it does not kill them. I have seen a few deaths from pertussis. The children expired during a violent paroxysm proably from a dilated heart.

On rare occasions contagion has been carried by a third person. In two instances I have known nursing mothers to visit where there was a case of pertussis, and carry the infection home to their own children. Such things happen, but are infrequent.

Undoubtedly many spasmodic coughs are due to enlarged bronchial lymp glands. Such cases are often mistaken for pertussis.

Treatment of Whooping Cough.—In the treatment of whooping cough, Struthers et al. conclude that the combination of large doses of freshly prepared vaccine and exposure to roentgen rays gives the most beneficial results. Prompt cures may be achieved occasionally with any form of treatment, but would appear to be more numerous in those cases treated by roentgen ray after the spasmodic manifestations have become definitely established. The most successful form of treatment of whooping cough is prophylaxis: that is. isolation of the patient, which must be complete, vaccination and isolation of all contacts. A period of four weeks after the onset of the disease is a sufficient length of time for isolation.

CANCER OF THE LINGUAL TONSIL.*

By Samuel G. Dabney, M. D., Louisville.

Mrs. X, aged 54 consulted me early in May. She gave the following history: Her health had been good for many years until about the first of last March. She then began to observe a sensation as if there was lump in her throat on the right side about the beginning of the windpipe. Gradually some obstruction in her voice took place, and she noticed a choky sensation when lying down. Several times she has vomited mucous material, and several times she has spit up blood, sometimes as much as two tablespoonsful. Since the middle of March, that is for the last seven weeks, she has been having severe pain on the right side of her throat and shooting to the face, the eye and the ear on the same side. She has not had much cough. For several weeks she has been unable to swallow solids, and occasionally has found difficulty even with liquids. So far as she has observed there has been no bad odor about her throat, nor has she had any decided shortness of breath. In the last seven weeks she has lost not less than twenty-five pounds in weight.

Examination shows a fairly well nourished middle-aged woman with a weak voice. No enlargement in the glands of the neck could be felt at that time. A casual examination of the pharynx showed nothing wrong, but the use of the laryngeal mirror immediately revealed a tumor nearly as large as an English walnut growing from the region of the lingual tonsil, pressing against the epiglottis and overhanging it into the larynx. The growth was mostly on the right side, but it extended beyond the median line. On palpation it was found to be firm and slightly nodular. It seemed remarkable that there was not more difficulty in breathing. I invited my next door neighbor, Dr. L. K. Baldauf, to see this growth, and submitted to him a section for microscopic examination. An application of cocaine to the surface of the growth rendered its removal almost painless. With cutting forceps I removed masses altogether about the size of a horse chestnut, and I think a surgical removal as completely as possible in this locality could easily have been effected, but upon telling the husband of the lady that the microscopic report, the appearance and the history of the case all pointed to cancer, he insisted that I inform his wife of this fact and let her decide whether or not to continue treatment.

Reluctantly,—and as I now think mistakenly,—I informed the lady of the situation. She was prepared to hear the diagnosis, but was positively unwilling to continue any other method of treatment, although she told me I had given her very little pain—less, indeed, than I feared I would.

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*Read before the Jefferson County Medical Society.

I have not seen the patient since early in May, but a letter from her doctor written on June 4th tells me that she is not changing rapidly though she is losing some flesh and at times expectorates a considerable amount of blood. She has had little pain except for a few days after the operation.

In conversing with some of my general surgeon, x-ray and radium friends I found it seemed to me a decided difference of opinion as to the wisest treatment. The general surgeons appear to favor as complete surgical removal as possible to be followed by the use of radium. Whereas some radiologists seem to be of the opinion that radium alone is the best treatment or perhaps x-ray. A few laryngologists are enthusiastic about diathermy, especially Dan Mackenzie of London.

This report is manifestly very incomplete, yet the case seems to me worthy of record: First, because of the rather unusual situation of the growth; second, because of the question it raised as to the wisdom of telling the patient frankly the diagnosis, and third, as to which surgical procedure is most beneficial in treatment.

The throat specialist sees few cancers compared with the general surgeon, but the consensus of opinion seems to me to favor thorough surgical removal as possible to be followed by x-ray or radium.

DISCUSSION

Shelton Watkins: I very much enjoyed Doctor Dabney's report of his interesting case.

It is my opinion that the carcinoma originated in the tongue and spread to the lingual tonsil. Carcinomatous growths in the tonsil are nearly always secondary to a primary growth in the neighboring structures, especially the tongue. On the other hand the sarcomas, especially the lymphosarcomas, often occur as primary growths in the tonsil. In view of the fact of the close proximity of the lingual tonsil to the tongue, and also that carcinoma is so rarely primary in the tonsil while so often primary in the tongue, it is much more likely that this growth originated in the latter structure. It is, of course, true that carcinoma rarely occurs at the base of the tongue but I do not think this is nearly as rare an occurrence as carcinoma in the lingual tonsil.

I feel that this condition belongs to the field of the general surgeon and am, therefore, not familiar with the latest method of treatment. I should think that radical surgery would offer the best opportunity of a cure, namely removal of at least one-half of the tongue and block the dissection of the glands of the neck.

A. L. Bass: I wish to discuss not so much the diagnosis in cases such as Dr. Dabney has reported, but especially the treatment. I know that the most of us have seen many of these cases. The glands of the neck are usually involved, and the old way was to remove the glands first then extirpate the tonsil or part of the tongue as the case may be. In all of the cases that I can recall the patients did not live very long. I do not believe operation extended the lives of the patients, on the contrary I am of the opinion it hastened the end in most cases. I have seen about a half dozen patients with malignant disease of the tonsil, and about the same number of the tongue. These are always sad pictures if one will take the trouble to investigate and ascertain the length of time the patients lived.

The last case I had was about a year ago, a man whom I first saw in March. He had been told that he had congestion of the pharynx. His chief complaint was a burning sensation in the throat. About a month later his right tonsil began to enlarge, the pillars were infiltrated, the tonsil protruded over the tongue to the median line and downward to the epiglottis. I saw the patient through the courtesy of Dr. Boggess. In all cases of this kind a Wassermann blood test is warranted. I recall another case almost identical with the one just mentioned where the Wassermann reaction was positive and the growth disappeared under antisyphilitic treatment. Not all tumors appearing in the throat or about the tonsil are malignant and a Wassermann test should always be made. To make a long story short, in this case I decided against the use of the knife and Dr. Boggess fully agreed with me. The man was given a few doses of roentgen-ray about the first of April, and a few days later radium seeds were implanted in the tonsil. Two weeks later the tonsil had receded at least half an inch away from the median line and the glands in the neck were considerably reduced in size. Ten days afterward the tonsil was normal in size and the glandular enlargement had entirely disappeared.

I have seen the patient from time to time since and to all appearances he is perfectly well. This case has rather made me a convert to radium and the roentgen-ray in malignancy of the tonsil instead of using the knife. If the involved glands are removed surgically new avenues for dissemination are opened and metastasis may be thus produced.

L. Wallace Frank: I will have to take issue with the last speaker. I am a firm believer in the use of the knife so far as the secondary growths are concerned. We have seen quite a number of patients with cancer of the tonsil and I can recall four with cancer of the tongue. Where these growths are accessible I believe thorough surgical removal is the most satisfactory treatment. It has been our custom to extirpate the enlarged glands as the primary step and then remove the growth secondarily. In cancer of the tongue so far posteriorly that the lingual tonsil and epiglottis are involved, to my mind the best method of treatment locally is with radium. Radical removal of the tongue itself is not such a terrible operation so far as surgery goes, but in so far as the mutilation is great it is a most serious affair. We all know the trouble feeding the patients entails after removal of the greater part of the tongue, and another objection is that such patients cannot talk above a whisper. In cancer of the tongue I would prefer radium as a means of treating the local lesion.

One of our patients with cancer of the tonsil and soft palate was treated with radium and resection of enlarged glands of the neck. There was a secondary recurrenec a year and a half later in the neck. The fourth of the coming July will be four years since the glands were removed from the neck and the man is well. We have had two other patients with cancer involving the lateral aspect of the tongue and rather extensive glandular involvement. In both the local lesion was treated with radium, the neck was widely dissected, all the glands in both the anterior and posterior triangles removed, and both are well after three years. There is no evidence of local recurrence and no evidence of malignancy in the neck or elsewhere. We had another man with cancer in similar situation who has since died of pneumonia. At utopsy there was no evidence of recurrence of malignancy. No treatment was applied to the neck in this case, either with radium, roentgen-ray or the knife; the local lesion was treated with radium. There was no evidence of cancer elsewhere. Possibly had he lived long enough he would have developed metastasis as most of these patients do.

After ten years experience with the use of radium in cancer about the tongue and tonsil, I am firmly convinced that better results can be secured by thorough excision of the glands of the neck, and radium application to the local lesion. In some cases the roentgen-ray is also useful. Retrospective survey of a long series of cases shows that the patients have gotten along better with the combination of radium and surgery than with radium therapy alone. Our experience with electrocauterization and diatheramy has not been sufficient to warrant the expression of an opinion.

I believe in malignancy of the neck and mouth that local treatment with radium, either needles or deep implantation, and wide resection of the neck glands, will give these patients the greatest chance of cure.

D. Y. Keith: In the case mentioned by Dr. Bass radium seeds were used. These seeds were introduced into the substance of the tonsillar growth without any pain under local anesthesia. I believe the patient received four radium seeds instead of six as stated by Dr. Bass. The strength used is either 1-2 or 1-4 millicurie. The seeds are implanted half an inch into the substance of the growth below the mucous membrane. If placed that deep there will be no ulceration and no symptoms. This man had no symptoms whatever from the radium implantation.

I agree with Dr. L. W. Frank that if all we had to do with malignancy anywhere was to relieve the primary growth, a great many of the patients would be cured, whether cancer involved the cervix, tonsil, tongue or some other organ of the body. Most of these cases can be treated and relieved of the local growth with radium, either by introducing needles, seeds implantation, or by superficial application. As to the point mentioned by Dr. Frank about radical surgery, I feel as he does about this. I think the patient is much more miserable after surgery than if nothing had been done. This at least has been true in all cases of cancer of the tongue that I have seen where complete or partial excision has been performed.

In Dr. Dabney's case, in which he says there was no glandular involvement, I believe if the local lesion had been treated with radium the patient would probably have gotten much more reduction of the growth that was left. After metastasis has become established, no cure can be expected for the patient. The best procedure, I believe, is radiation for the lymph nodes, without excision. This renders the cancer cells "sick" as has been expressed by men of prominence, and there is much less likelihood of transplantation if operation is performed. Regional lymph enlargement quite frequently disappears much more rapidly after radiation treatment than does the primary tumor. If they disappear so completely, why operate, as an internal metastatis usually causes the death of the patient, and not regional lymph node enlargement. The same thing is true with metastatic sarcoma. If there is a local lesion left which does not entirely disappear, my belief is that if this is removed and followed by roentgen-ray exposures, the patient is better off than he would be with radical surgery.

A patient had a malignant tumor on her tongue, originating far posteriorly and had radium seeds implanted in it followed by severe infection. She now has telangiectasis on her tongue. We feel sure this was due to inaccuracy in measurement of radium contained in the seeds used in treatment at that time. She was treated two years ago. The manufacturers admitted that their measurements of the first radium seeds distributed was not accurate. This patient was supposed to have had 1-2 millicurie seeds implanted in the tumor involving her tongue. She evidently had much more than that, an extensive sloughing was produced. The entire growth sloughed away and she now has the condition of the tongue that I have described. In treating a malignant tumor by seed implantation, we do not use more than 1-2 millicurie seeds and implant them one-half centimeter apart. If placed that far from each other there will be no sloughing and the patient will have no local symptoms. In treating malignancy of the tonsil, we try to place one radium seed near the center of the tonsil and the others around this a few millimeters from the margin so they are a considerable distance apart, approximately 1 cm. distance apart.

I do not recall the amount of roentgen-ray treatment given in the case mentioned by Dr. Bass, but I think the man received six or seven doses. We always take this precaution in treating patients with the roentgen-ray about the neck, we give them small doses to prevent severe reaction, swelling, etc.

As the most of you understand, radium needles have to be removed, but radium seeds are allowed to remain in the tissues.

Samuel G. Dabney (in closing): The point made by Dr. Bass regarding the Wassermann test is well taken. I always have this test made. In the case reported the blood Wassermann was negative.

I think if Dr. Watkins had seen the patient—and I wish he had—he would have agreed with me that the origin of the growth was from the lingual tonsil. It did not seem to involve the tongue very much, it grew upward from the lingual tonsil, it pressed against the anterior surface of the epiglottis, and was overhanging the larynx. My impression is that cancer originating in that situation on the tongue is very unusual, and I think this case can be diagnosed as cancer having its origin in the lymphoid tissue at the base of the tongue, the so-called lingual tonsil.

I wish some of the gentlemen had discussed the question of the position taken by the husband in the case reported. In cases of this kind it is certainly the duty of the physician to inform the husband of the diagnosis and let him take such steps as he thinks best. It would have been better, I think, if I could have persuaded the husband in this case to either lie to his wife or evade the question entirely. I told the woman that I had seen many mistakes, that I had made a few grevious ones myself, and any of us might be wrong although we tried to be accurate in the diagnosis. For example, a man once came to me with what had been pronounced cancer of the larynx. He had been examined by four excellent laryngologists, one a Chicago man of high reputation. All of them were positive the growth was cancerous. Yet his recovery led me to believe we were all mistaken. Medicine is not an exact science.

While we may feel morally certain ourselves that we have a case of cancer, and perhaps 99 times out of 100 we are correct, yet I gravely doubt the wisdom of telling the patient—particularly a woman—of the diagnosis.

I suggested to the husband that further treatment might be of benefit, either surgery, radium or the roentgen-ray, and urged him particularly not to take his wife home at the time; but when she heard the word "cancer" she relinquished all hope and refused to be treated. I believe it would have been better for all concerned if we had withheld the diagnosis from the patient in this case; the husband should have been persuaded to tell his wife that we were uncertain; that would have been much the wiser plan; but he insisted upon me telling her the truth. I believe that was a great mistake.

I remember very well the case mentioned by Dr. Bass, and congratulate him upon the fact that the patient is holding his own.

Results of Resection for Gastric Cancer.—Perssons has made a study of 361 cases in which a gastric resection was done for carcinoma of the stomach. The operative mortality was 28.0 per cent. In 450 cases of gastro-enterostomy, the operative mortality was 17.1 per cent. More than five years have elapsed since 269 of the patients had resection. Of these, sixty-six died primarily; three were not found. Of 200 surviving patients, 161 died within five years; all except two died of relapse. In addition, twelve patients died of a relapse later than five years after operation. Nine patients died of some other disease later than five years after operation. Eighteen patients are still living, seventeen of who are well, from seven to twenty years after operation. One patient has on two occasions been subjected to resection, at an interval of three years. From the point of view of the durability of the results, the Billroth II and Polya procedures have shown themselves to be absolutely superior to the Billroth I operation, transverse resection and the Kocher method. Scirrhous tumors have proved to show a greater relapse tendency than the other forms of gastric cancer. None of those patients surviving the operation for scirrhous tumors have remained free from relapses, while, of the other patients, 13.9 per cent have not had a relapse.

EYE STRAIN AS A CAUSE OF HEADACHE.*

By J. F. Dunn, M. D., Arlington, President of West Kentucky Medical Association.

Headache is the most common pain with which humanity suffers. The causes are many and may be located far from the head. We are called upon daily and sometimes hourly to relieve that awful headache, which, of course, would be a very easy thing to do if we could only find the cause and remove it, but as the cause may be very, very far from the seat of pain we often overlook it and the patient, after trying out all the druggists, all the M. D.'s and last but not least, the chiropractor, finding no relief except from the chiropractor which doesn't last long, finally settles down and believes that he is doomed to have the headache the rest of his days.

Realizing the fact that headaches may arise from affections of the eye, the ear, the nasal cavity and its accessory sinuses, the teeth, the liver, the gastro-intestinal tract, the kidneys, the generative organs, the brain and spinal cord, the nervous system, and many other affections of the body, and sometimes from a combination of two or more of these affections of the body, and also realizing the fact that our patients are sometimes not willing to have a pair of glasses fitted, their tonsils removed, their teeth repaired, their septum straightened, their turbinates removed, their gall-bladder drained, and their appendix taken out, then is it any wonder that we often fail to remove their headaches?

We shall not consider all of these forms of headaches tonight but shall only consider the form which arise from eyestrain.

As the subject of this paper signifies headaches are caused by eye-strain, but what causes eye-strain? We are all aware of the fact that a pair of eyes having the proper dimensions inside and out, with the rays of light focusing properly on the retina and each eye working in harmony with the other eye, there is no strain. But any deviation from this will cause trouble which may be manifested in many different ways. In short, we may say that eye strain is caused by diminished visual acuity. This diminished vision may be due to one of the following conditions, viz. myopia, hyperopia, muscular imbalance, and astigmatism. We shall not go into the details of these conditions as most of the doctors here are general practitioners and would not be interested in them, but will only touch them lightly as they lead up to what I am trying to say in this paper.

Myopia, (nearsightedness) seldom causes headache as they are unable to accomodate for far off objects and, consequently, confine themselves to objects at close range, which necessarily produces no effort on the muscles of accommodation, and when the muscles of accommodation are not taxed, there is no strain. Therefore, simple myopia can be practically ruled out as being a cause of headache.

Hyperopia, (farsightedness) on the other hand renders it difficult to maintain a distinct image of objects at close range, such as reading, sewing, etc., for any long period. If this is persisted in for any great length of time the accommodation is exhausted and aching of the eyeballs and head results. Patients of this class readily find that they can not see to read and they do one of two things, either of which relieves their headache. They either quit using their eyes for close work or in many instances go to the drug store or jewelry store and pick out a pair of glasses that they can see to read with which relieves their symptoms and but a small per cent of these ever reach the physician. Therefore only a small amount of headaches arise from hyperopia.

Muscular imbalance causes a great deal of disturbance both to the physician and the patient. Often the specialist has been baffled when he tested each eye separately and prescribed what he thought to be the proper lens for the eyes, only to find that the symptoms failed to disappear. As we all know each eye has 6 muscles which determine the action of the eyeball. When all of these muscles are performing their function properly both eyes fix on the object which is being viewed and only one object is seen, but if one or more of the muscles of one eye lose their tone then that eye deviates or turns out of its proper position and sometimes two objects are seen. The subject of muscular imbalance is a very large one, in fact, too large to consider in this paper, so we will only notice the form that causes headache. In this form the deviation is slight and the patient is not conscious of seeing two objects. Both eyes try to fix on the same object at the same time which is impossible, and in so doing there is eyestrain accompanied by headache.

Astigmatism is the condition that carries us into deep water. DeSchweinitz says that fully 70 per cent of all functional headaches are caused by astigmatism either alone or associated with other forms of ametropia. The headache may vary from a moderate frontal distress to a violent explosion of pain and may be situated in any portion of the cranium. He also says that the pain may be situated in the nape of the neck, between and under the shoulder blades, at the end of the spine, and deep in the mastoid. And, going beyond this paper, he also says that astigmatism may cause many other reflex nervous disturbances, such as vertigo, pseudochorea, habit spasm, epileptiform convulsions, melancholia, tachycardia, night terrors, flatulency, and other forms of dyspepsia, and even constipation. Then, if this be true, it is no wonder that the laity often say that "two heads are better than one if one is a sheep's head."

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*Read before the McCracken County Medical Society.

Strange to say that a small error of refraction as a rule will cause worse headaches than large ones. In a large error many objects can not be determined at all and therefore the patient does not try to recognize them and there is no strain on the ciliary body, but in a small error, especially a low degree of astigmatism the patient is able to see all objects however small, but cannot see them plainly, for instance: F resembles P, H resembles K, and C looks like O, etc. and the persistency in trying to distinguish them causes considerable strain on the ciliary muscle, resulting in headache.

We are often surprised when a patient has prominent symptoms of eyestrain to learn on testing them out that their vision is 20-20 or better. We have seen patients with a vision of 20-15 in each eye, suffering with the most violent forms of headache, which was relieved by the weakest cylindrical lens in the trial case. So it is the borderline cases that puts to the test the general practitioner as well as the specialist.

The main thing in this paper which should interest the general practitioner is not whether his patient has myopia, hyperopia, astigmatism, exophoria, esophoria, or any of the other phorias, but whether the patient's headache comes from eyestrain. If so he sends him to a specialist and it does not matter what form of eyestrain the specialist finds, nor what kind of lens he puts in the glasses just so the patient comes home without his headache. That being the case we feel that we are just now coming to the most important part of this paper, viz: diagnosis.

I have not prepared this paper in order to teach the specialist anything if he be here tonight, as he is already familiar with what has been said, but speaking from the standpoint of the general practitioner, I realize that we know less about the affections of the eye than any part of the human anatomy, and as this condition under discussion tonight is one of the most common conditions met with in general practice I feel it is not amiss if we take a little review of the subject.

When a patient comes to us with headache, we, as general practitioners, look elsewhere than the eyes for the causative factor. We may by a urinalysis exclude the kidneys, by a leucocyte count exclude focal infections, by an examination of the generative organs exclude them, by catharsis exclude constipation and so on until we have excluded everything but the eye, then we suppose that the headache is caused by eyestrain as there is nothing else left.

While on the other hand, the specialist looks first to the eyes and finding the trouble there, looks no further.

I do not believe that the general practitioner should encroach on to the specialist's field, but I do believe that he should be able to tell his patient as readily as the specialist whether or not his headache is due to his eyes, and not do as I have done many times, and perhaps as others have done, treat the patient on the expectant plan for months and even years, with no relief and finally the patient of his own accord goes to the specialist and gets relief. There is not much prestige gained by such a procedure.

As we have already stated it is not always easy to diagnose this condition as there are so many wide variations and there is no set rule laid down to guide us. The majority of these headaches come on as follows: the patient gets up in the morning free from headache, but as the day progresses and he resumes his regular task such as reading, sawfiling, sewing or stenography, his headache begins. As a rule it is temporo-frontal headache with aching eyeballs, but remember that we said in the beginning that the pain might be situated anywhere from the lower border of the scapula to the cornea and don't be too quick to rule out eyestrain if the pain is not in the front part of the head. In many cases the headache disappears as soon as the patient stops using his eyes for close work, while others have almost a continual headache except when they are asleep. Other symptoms they may have in connection with their headache which may aid us in making our diagnosis are blurring of the letters in reading, their eyes tire easy and water, repeated attacks of conjunctivitis, or they may be troubled with stys often.

In the presence of the above named symptoms it is a very easy matter to reach our diagnosis, but when the patient's vision tests normal on the chart, with practically no other symptom but headache, we are up against it as well as the patient.

For the puzzling cases there are two simple methods which any doctor can use and make a positive diagnosis:

1. The muscle test point for the detection

of muscular imbalance. This is done as follows: place a small candle or flame 20 feet from the patient, put a colored lens or glass, (for instance a red glass) over one eye and have him look at the flame with both eyes open. If there is any deviation in either eye the patient will see two flames, a red one and a white one, varying from one to several inches apart, in which case you will likely have found the cause of the headache. If he does not see two flames you know that both eyes are focusing properly and there is no imbalance.

2. The use of atropine. This may be objected to by some patients, but nevertheless, the specialist would very likely have to use it, so it is up to the patient to choose what he thinks to be the less of the two evils. It is used as follows: put one drop of a 1% solution of atropine into each eye three times a day for three days. This paralyzes the accommodation and if there is any eyestrain it will absolutely relieve it for the time being, and we know positively that the headache was caused by eyestrain. Then while the eyes are under the influence of the mydriatic we can send the patient over to the specialist who can in a few minutes do a retinoscopy and prescribe the proper glasses.

Treatment

There are two forms of treatment which have been sorely tested, viz: palliative and curative.

The palliative treatment covers a multitude of drugs such as aspirin, the coal tar derivatives, the bromides, opiates, proprietary measures, and all kinds of patent dopes, all of which are only temporary and unsatisfactory.

The curative consists only in the proper fitting of glasses to the patient's eyes which alone will relieve all their sufferings.

Colloidal Lead Treatment of Malignant Tumors.—Stone and Craver have observed regressive changes in the tumors of eight patients out of twenty-one who have received lead injections, either alone or in combination with the applications of the roentgen ray and radium. In two cases, however, the changes were transient, and did not exert any influence on the course of the disease. In one of these—a cancer of the breast—there was a definite regression of the primary tumor, shortly after the injections of lead alone, but the lead had no apparent effect on the metastases or on the course of the disease. The other, also a cancer of the breast, showed regressional changes in the skin metastases where the roentgen ray had been applied previously, but manifested no other changes.

NEWS ITEM

During the meeting of the American Psychiatric Association this year in Cincinnati there was formed the Central Psychiatric Hospital Association, which is composed of private sanitariums for the care and treatment of nervous and mental diseases. The organization was the culmination of several years thought and a feeling that the necessity existed for such an association. At Minneapolis in October permanent officers were elected as follows:

President—Dr. Thomas Ratliff, Cincinnati, O.

Vice Pres.—Dr. Russell Doolittle, Des Moines, Iowa.

Sec'y.-Treas.—Dr. D. A. Johnston, Cincinnati, Ohio.

Councilors—Dr. Frank Norbury, Jacksonville, Ill., Dr. Karl Menninger, Topeka, Kans.

The purposes of this Association are to foster co-operation among private hospitals for nervous and mental diseases for their mutual benefit and to promote and maintain higher ards, increase efficiency of organization and the standards, increase efficiency of organization and the advancement of scientific care and treatment for those in their care.

A committee on standards is meeting with the council in Chicago, December 14, 1927 to formulate standards for hospitals of this type.

FORUM

To the Editor:

In an article by me in the December number of the Phi Chi Quarterly A A, Louisville, entitled "The Kaleidoscope of Medicine," a glaring typographical error occurs in the following sentence:

"Students in medical colleges are being taught more and more, of the less and less, often more **socialistic** than **scientific.**" Should have been printed more **sciolistic** than **scientific.**

As the next number of the Ph Chi Quarterly will not appear before March, I shall appreciate your kindness by inserting this notice in an early issue of the Kentucky Medical Journal, so that the joke of medical colleges teaching socialism may not become too actually serious at least by members of the order in Kentucky before its correction in the March number of the Phi Chi Quarterly.

WILLIAM B. DOHERTY,
Louisville, Ky.

BOOK REVIEW

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 7, Number 4 (Brooklyn Hospital Number—August 1927.) 311 pages with 168 illustrations. Per clinic year (February 1927 to December 1927.) Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

This volume is intended to represent a cross-section of some of the problems and activities of the several divisions of the Department of Surgery of a general hospital in a large city.

While no attempt has been made to present the unusual, we have, nevertheless, purposely omitted some of those subjects which have been so thoroughly discussed during the past few years. Gastric and duodenal ulcer, biliary disease, appendicitis, empyema, goiter, etc., constitute a large share of the surgical work of this institution, and yet it seemed of more value and interest to us to portray some of the less frequently discussed phases of our work. The material contained in this book represents fairly well the routine character of certain types of surgery observed and cared for in The Brooklyn Hospital, and is, for the most part, collected from cases or studies of groups of cases presented by various members of the staff at the weekly conferences of the department.

BRONCHOSCOPY AND ESOPHAGOSCOPY. By Chevalier Jackson, M. D., Professor of Bronchoscopy and Esophagoscopy, Jefferson Medical College; Professor of Bronchoscopy and Esophagoscopy, Graduate School of Medicine, University of Pennsylvania. Second edition, reset. Octavo of 457 pages with 179 illustration and 10 color plates. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $8.00 net.

Dr. Jackson has rewritten his book—a practical text-book on endoscopy and laryngeal surgery. He presents, through detailed descriptive text and unusually graphic illustrations, a work that is as practical as it is interesting.

The instruments needed, the positions of the patients, the application of the instruments, the grasping of the pin, tack, or other obstructing body, and its extraction, are told most clearly and shown step by step through original illustrations.

But this book is more than a work on the mere extraction of foreign bodies from the bronchi. Endoscopy today has assumed an undeniable importance in the diagnosis and treatment of disease of the bronchi, esophagus, and lungs, such as suppuration, hemorrhage, abscess, etc. This book gives every possible use of the bronchoscope and esophagoscope, in addition to definite technic for the extraction of foreign bodies.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH, with an introduction to Practical Gastro-Enterology. By Martin E. Rehfuss, M. D., Assistant Professor of Medicine at Jefferson Medical College. Octavo volume of 1236 pages with 519 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $12.00.

This book is, literally, a postgraduate course on the diagnosis and treatment of diseases of the stomach. It takes up every phase of the subject—presents the subject from every angle—bedside, gastroenterologic laboratory methods and technic, and roentgenologic examination.

The work is original in every respect—original in conception, original in the material which it contains, and original in the method of presentation. It is written in the spoken language rather than the written language and has therefore an ease of style which makes for quick comprehension.

The subject has been presented under three main divisions: The first third is devoted to technic and the methods of interpreting findings in diagnostic terms. The second third is devoted to the diagnosis and treatment of diseases of the stomach, using for this purpose every advance in the field of gastroenterology. The final third of the book is devoted to a full presentation of those diseases of the remainder of the alimentary tract which have a deranging influence on gastric function.

In order to give to the book the highest degree of authority in certain special phases, Dr. Rehfuss called in as collaborators men who stand at the head in these specialties: John B. Deaver has written the chapter on gastric surgery. Chevalier Jackson has written the chapter on gastroscopy; Willis F. Manges and John T. Farrell, Jr., cholescystography; John A. Kolmer, gastric bacteriology; J. Alexander Clarke, allergy, and Louis H. Clerf diseases of the esophagus.

A TEXTBOOK OF THERAPEUTICS, including Essentials of Pharmacology and Materia Medica. By Arthur A. Stevens, M. D., Professor of Applied Therapeutics in the University of Pennsylvania. Seventh Edition, entirely reset. Octavo of 758 pages. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $6.50 net.

The new edition is ready—and conforms to the latest United States Pharmacopeia. Much new matter has been added; many sections have been entirely rewritten. Among the new therapeutic agents introduced are: Barium, ephedrine, ethylene, butyn, sulpharsphenamine, tryparsamide, stovarsol, thyroxin, insulin, amydopyrine, parathyroid hormone, bismuth potassium tartrate, mercuric oxycyanide, flumerin, novosurol (merbaphen), hexylresorcinol (caprokol), gentian violet, scarlet fever toxin and antitoxin, erysipelas streptococcus antitoxin, medical diathermy, transfusion of blood, and heliotherapy.

Preliminary chapters of the book are devoted to the composition and preparations of drugs, incompatability, the various methods of administering drugs, and conditions modifying the effect of drugs. Then about 500 pages are devoted to the drugs themselves, classifying them according to their actions. The remainder of the volume is devoted to applied therapeutics, in addition to drugs considering electricity, massage, heat and cold, blood transfusion, roentgen ray, radium, heliotherapy, biologic products and other therapeutic agents.

In a word, this new edition of Dr. Stevens' book is a concise description of the most important pharmacologic reaction and the use of the various therapeutic agents in influencing disturbances that occur in disease.

UROGRAPHY. By William F. Braasch, M. D., Head of Section of Urolcgy, Mayo Clinic; Professor of Urology, Graduate School of Medicine, University of Minnesota. Second edition, revised and enlarged. Octavo of 480 pages, illustrated with 759 roentgenograms. Philadelphia and London: W. B. Saunders ompany, 1927, Cloth, $13.00 net.

This edition—more correctly a new book—includes the roentgenographic study not only of the renal pelvis but of the entire urinary tract, hence the new title "Urography."

It is a complete work—a new work, rewritten, enlarged, vastly improved. It takes you through the history of the subject, points out the contraindications, helps you select the medium for rendering the urinary tract opaque, illustrates the various positions, tells how to inject the medium and avoid the usual errors. Then Dr. Braasch describes roentgenographic technic in great detail.

This discussion of the fundamentals is followed by an extensive consideration of the normal renal pelvis—illustrated with 99 roentgenograms. Here the author outlines normal conditions both by picture and by word, enabling you more quickly to recognize the abnormal. The remainder of the book is a richly illustrated presentation of disease, injuries, anomalies, obstruction, tumors, etc.

The illustration, 793 of them, cannot be commended too highly. They were carefully selected by Dr. Braasch from the thousands made at the Mayo Clinic. The original roentgenograms were skillfully reproduced. It is really an Atlas.

FEEDING AND THE NUTRITIONAL DISORDERS IN INFANCY AND CHILDHOOD, by Julius H. Hess, M. D. Professor and Head of the Department of Pediatrics, University of Illinois College of Medicine; Attending Pediatrician to Cook County, Michael Reese and Englewood Hospitals; Member of Executive Board, Municipal Contagious Hospital, Chicago; Member of Advisory Board, Children's Bureau, Department of Labor, Washington, D. C. Illustrated with forty-five engravings in the text and one full-page colored plate. Fifth revised and enlarged edition.

In the discussion of artificial feeding a basis for the preparation of diets has been established which maintains an absolute relationship between the quantities of the individual food elements of the diet: fat, protein, carbohydrate, salts and water, and the requirements for growth and development of the infant, per pound or kilogram body weight, independent of the size and frequency of the feedings.

Diets have been added for children up to and including the sixth year.

The chapters on acidified milks, vomiting, colic and flatulence, constipation and abnormal stools have been revised.

The classification, nomenclature, pathogenesis and treatment of the nutritional disorders conform to the latest researches.

The chapters dealing with rickets, scurvy, spasmophilia, acidosis and anemias of infancy have been revised to include recent developments. Celiac disease is introduced in an added chapter.

Kentucky Medical Journal

Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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Obstetrics	
W. T. McConnell	Louisville
Eye	
Adolph O. Pfingst	Louisville
Ear, Nose and Throat	
C. T. Wolfe	Louisville
S. S. Watkins	Louisville
Proctoogy	
G. S. Hanes	Louisville
Bernard Asman	Louisville
Practice of Medicine	
W. O. Johnson	Louisville
John Harvey	Lexington
Anesthetics	
W. H. Long	Louisville
Dental Prophylaxis	
George H. Heyman	Louisville

COUNTY SOCIETY REPORTS

Harrison: The Harrison County Medical Society met in regular session Aug. 1, 1927 at Harrison Memorial Hospital. Members present: Drs. Henry, Wells, Wood, Wyles, N. W. Moore, Midden, McDowell, Rees, Martin, Carr McElwain and W. B. Moore, Dr. Wells in charge.

Minutes of last meeting approved as read. Dr. Wood reported Tuetic case. Dr. McDowell reported cse injury to testicle. Dr. Rees reported case of woman who developed pain in chest and pulse 120 and albuminuria one week after labor. Dr. Martin made further report on case reported at last meeting. Dr. Carr reported case of diphtheria. Dr. Wells reported case of bromide delirium. Dr. Henry read paper on chorea, the paper was discussed by Drs. Wells, Wood, N. W. Moore Rees and Carr.

W. B. MOORE, Secretary.

Third District: The last meeting of the Third District Medical Society was held in Bowling Green on November 2, 1927 with Dr. Hubert Meredith in the chair.

Dr. G. R. Keen reported a case of epulis on upper alveolar ridge in a white male, age 45, duration 25 years. This was removed by surgery, diathermy and coagulation. Photographs were shown of it before removal and three weeks after. This case was discussed by Doctors W. C. Strother, Smith and Dunklin.

Dr. W. C. Strother exhibited a case in a white female, who on Feb. 20, 1927 had a staggering gait, partial right hemiplegia-nystagmus, right eye fixed-diplopia-ptosis. Had tremor of right arm, dragging speech, partial aphasia-somnolence about a month. Could be aroused. This was diagnosed as encephalitis.

Dr. S. J. Martin reported a case of Gangrene of Penis. This was discussed by Doctors E. A. Cherry and Blackburn.

Dr. W. C. Strother also exhibited a case in a white male, age 63, who had right sided, convulsive seizures, Jacksonian type. Diagnosed as Tumor or Gumma. Evidences favored tumor as cause. This case was discussed by Doctors Dunklin and Blackburn.

Dr. T. H. Turner reported a case of injury to the chest wall in a 6-year-old girl.

Dr. C. E. Francis reported a case of Anaphylaxis from injections for scarlet fever of toxin-antitoxin.

Luncheon was held at the Mansard Hotel.

Dr. F. B. Dunklin, Nashville, read a paper on Encephalitis, which was enjoyed by all.

JOHN H. BLACKBURN, Secretary.

Campbell-Kenton: Death has removed another of the group of Covington's elder physicians who have made the medical history of

Northern Kentucky.

Doctor William Henderson Kelly, one of the leading physicians of Covington, died on September 18, 1927.

Born in Bourbon County, Kentucky, on August 31, 1858. Dr. Kelly received his preparatory education in the Yerkes School in Paris and at the age of 20 graduated from Centre College.

His uncle, Dr. William Henderson, a prominent and most able physician of Covington, guided Dr. Kelly's first steps in the field of medical training and in conformance with the regulations in vogue at that time later assumed the obligations of a preceptor, when his nephew matriculated in the Medical College of Ohio. After his graduation in 1881 Dr. Kelly served as interne in the Good Samaritan Hospital and as resident physician in the private Hospital for Women of Dr. Thaddeus A. Reamy. Two years of intensive work in the hospitals of Europe (Goettingen, Berlin, Vienna, London) completed his preparations for the practice of medicine. Establishing himself in the office of his uncle, who had passed away, Dr. Kelly for a short time engaged in surgical practice, but, although well qualified for this work and signally successful in its pursuit he soon discovered that in the direction of internal medicine lay both: his preference and his forte.

And indeed the wisdom of his choice was fully attested by the outstanding success which attended his efforts in this branch of medicine. A rapidly enlarging clientele recognized Dr. Kelly's superior qualifications; his professional confreres on the southern shore of the Ohio River soon learned to value his diagnostic acumen and frequently called him in consultation in difficult cases. Dr. Kelly kept assiduously abreast of the advances in medicine by devoting much of his spare time to the study of the literature. His thorough training in the fundamentals enabled him to win now the chaff from the wheat in his reading. As an example of his progressive spirit and sound judgment we may cite that he was the first physician in this region of the United States to employ diphtheria antitoxin.

The high esteem in which Dr. Kelly was held by his patients and his colleagues, was well deserved.

Dr. Kelly accepted the care of his patients as an individual responsibility and took a keen human interest in their welfare. Between Dr. Kelly and his patients existed that personal relationship which at once is the biggest factor in the art of medicine and the key to effective therapeutic service. Dr. Kelly was a public-spirited citizen, honorable and trustworthy. His daily life was worthy of emulation by all of us.'

Your committee recommends that the following resolution be passed by the Campbell and Kenton Counties Medical Society:

Whereas, in the death of Doctor William Henderson Kelly the medical profession in general and the physicians of Northern Kentucky in particular have lost an honored colleague and the community at large an able counselor and a loyal advisor; be it

Resolved, that the Campbell and Kenton Counties Medical Society testify to its high respect for Dr. Kelly's rugged character, its profound esteem for his ungenerous personality; That as a memorial to him this statement of the Society's appreciation be spread upon its minutes; That it be printed in its official journal; That a copy of this resolution and an expression of the Society's profound symapthy with his family in their bereavement be communicated to Mrs. Annie Henshaw Kelly, his widow, and to Dr. Thomas Henshaw Kelly, his son.

L. C. Hafer,
Karl W. Zwick,
J. D. Northcutt,
Committee of Resolution.

Marion: The Marion County Medical Society has a paid membership of ten, one of whom does not reside in nor practice in the county. We have thirteen doctors in the county, four of whom have not paid their dues for this year, and are not therefore members of the society. One of these is a young doctor who has just located and has not yet taken membership, but we feel sure he will do.

No doctors of the county have died within the past year and there have been no removals, but we have had one young man to locate in Lebanon recently, who will engage in general practice.

We meet annually for the purpose of electing officers, but our success ends with the election of officers.

G. G. THORNTON, Secretary.

Carlisle: On July the 20th, 1927 the Carlisle County Medical Society met in continued session in the office of Dr. H. A. Gilliam at Milburn, all members being present.

Dr. E. V. Edwards of Mayfield being present was made honorary member.

Present Status of Scarlet Fever and Diphtheria Toxin-Antitoxin, by E. V. Edwards. Discussion opened by J. F. Dunn.

Neurosis of Women, by H. T. Crouch. Discussion opened by R. C. Burrow.

Management of Diabetes with Special reference to use of Insulin, by G. W. Payne. Discussion opened by H. A. Gilliam.

Minutes of previous meeting were read and approved.

W. Z. Jackson, President,
H. A. Gilliam, Secretary.

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Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets.

Subscription Price, $5.00
Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowling Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., FEBRUARY, 1928 No. 2

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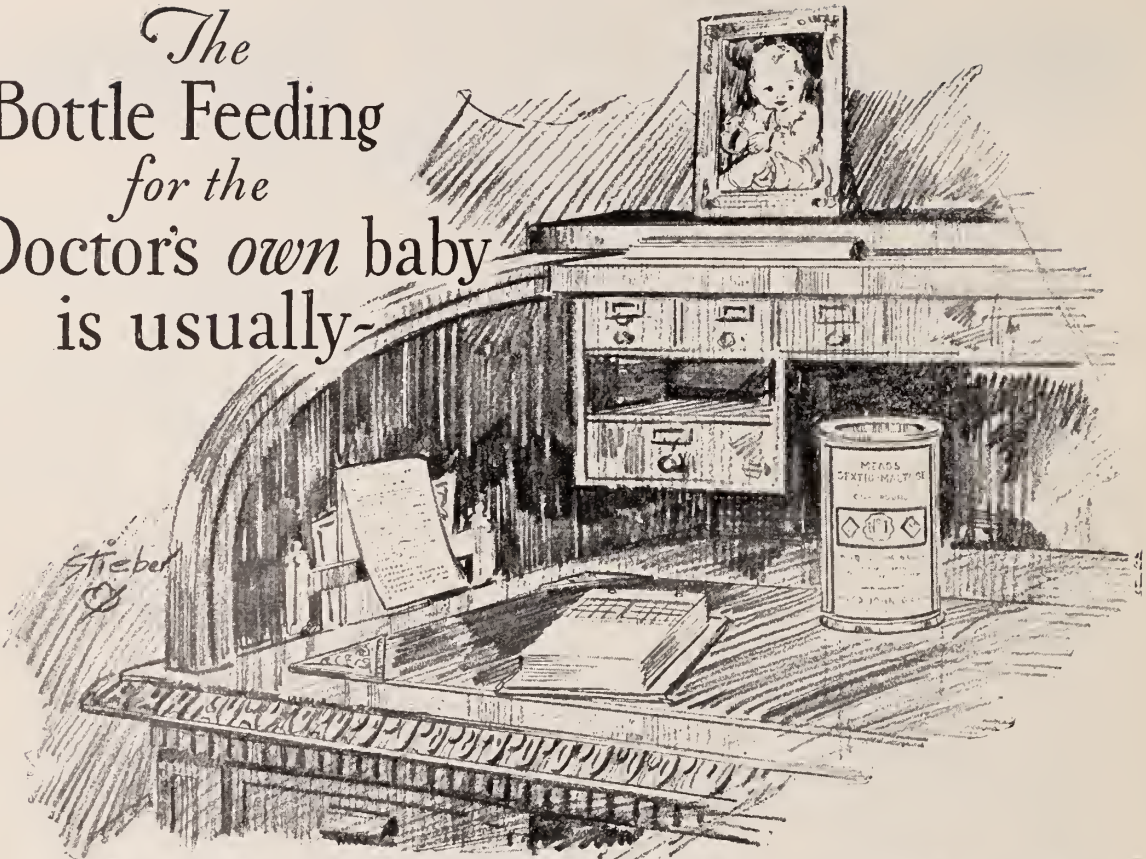

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

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EDITORIAL

A NATION-WIDE CAMPAIGN FOR THE EARLY DIAGNOSIS OF TUBERCULOSIS.

The National Tuberculosis Association, with its fifteen hundred state and local affiliations, with the support of the American Medical Association and the American Public Health Association, is sponsoring an "Early Diagnosis of Tuberculosis" campaign during the month of March.

The aim of the campaign is two-fold: first, to focus the attention of the public at large upon the danger signs of early tuberculosis, and to urge them to go to their doctor for an examination; and second, to stimulate renewed interest on the part of the medical profession in the recognition of early signs of tuberculosis.

The co-operation of every physician in the state is sought to encourage the physical examination of the apparently well during the month of March.

The Kentucky Tuberculosis Association, through its Executive Secretary, Dr. J. S. Lock, is prepared to supply upon request, very striking public health bulletins and literature on the subject of the importance of physical examination and early diagnosis. This organization will also supply newspaper and other publicity mediums with plenty of material preceding and during the campaign.

Motion pictures for lay audiences entitled "Let Your Doctor Decide", and another for medical groups entitled "The Doctor Decides", will be used throughout the state. Speakers for county medical societies will be supplied by writing to Dr. Lock at Louisville.

SCARLET FEVER

At this time of the year a brief reference to scarlet fever is apropos. It is well to bear in mind that so-called scarlatina and scarlet fever are one and the same. Scarlatina is a vicious term and should not be used. Unfortunate the laity and even a few physicians think of and discuss scarlatina as a simple disease being of no importance or consequence. Such belief has been the cause of epidemics of scarlet fever and responsible for serious complications and sequela. We have at our command a fairly accurate diagnostic aid, the Blanching or Extinction Test as described by Schultz and Charlton. This test is of great value in doubtful border-line cases. Space does not permit a detailed description of this test. Sufficient is it to state—the technique is simple—the reaction definitely positive and the deduction therefrom accurate. Temporary protection lasting possibly two or three weeks can be obtained by the use of the scarlet fever antitoxin prophylactic to be *used only* as a temporary protection for those in whose family there occurs an outbreak of scarlet fever.

With reference to treatment: In addition to the usual quarantine—skillful nursing—absolute rest in bed—diet—drugs as needed—urinary examinations daily—local treatment of nose, throat and skin as necessary, we have at our disposal scarlet fever antitoxin curative or therapeutic which if used early will produce brilliant results in most cases. Usually one injection is sufficient, occasionally two or more will be needed. The antitoxin is so standardized or supposed to be that the average curative injection of 500,000 (skin doses) is obtained in 10 to 20 cc., depending upon the concentration. In the opinion of the writer, scarlet fever antitoxin should be routinely used. The reaction which may and does occur in asthmatics and those sensitive to horse serum can be somewhat relieved by the use of adrenalin. The writer uses in most injections whether therapeutic or prophylactic 1-3 to 1 cc. adrenalin. Despite such practice often a rather troublesome urticaria develops which usually is of no great importance. Authorities state that scarlet fever antitoxin occupies the same position to scarlet fever as diphtheria does to diphtheria.

The Kentucky State Board of Health is able to furnish a reliable scarlet fever toxin and antitoxin both prophylactic and curative, the price of which is within range of even the poor.

J. H. PRITCHETT.

CUMBERLAND VALLEY MEDICAL SOCIETY

Members of the Cumberland Valley Medical Society, composed of Bell, Harlan, Knox, Laurel and Whitley Counties, were the guests of the Harlan physicians on December 21, 1927. It was an enthusiastic, well attended and interesting meeting. I wish that every secretary of the county medical societies in our organization could have been there to see the spirit of co-operation and good fellowship that prevails among these doctors.

The members pay $12.00 a year for dues, which is the highest of any medical society in Kentucky. Not a member murmurs about this increase in price and several at the business meeting volunteered to give more money if the society needed it. They have a monthly meeting in the form of a luncheon and this is paid for from the dues of the society.

They gave a royal entertainment to the visiting physicians from all the adjoining counties. The banquet hall was especially arranged for this meeting and the table was decorated with Christmas greens and favors for the doctors and their wives. A most elaborate menu was served with all of the Christmas dainties, including turkey and its delicacies.

Dr. J. H. Hendren was toast master. Dr. Edw. Wilson, Pineville, was elected President of the Cumberland Valley Medical Association, and Dr. W. R. Parks, Harlan, was elected Secretary, and the next meeting will be held in Pineville.

The program was very interesting. Dr. John Blackburn, Bowling Green, President of the Kentucky State Medical Association, gave an address on Cancer. Dr. Paul Turner, Director, State Tuberculosis Sanatorium, Louisville, gave a demonstration on The Examination of The Apparently Well. Dr. Lillian H. South, Louisville, spoke on Tularaemia, (or Rabbit Fever) in Kentucky.

Other speakers on the program were Dr. Phillip Barbour, Louisville, who spoke on the Interpretation of Blood Findings In Children; Dr. W. O. Johnson, Louisville, whose address was The Care of Some Pre-Menopause Symptoms, and Dr. A. T. McCormack, State Health Officer, Louisville, was present and introduced Dr. John Blackburn and Dr. Paul Turner. Dr. McCormack also spoke on the Health Problems In Eastern Kentucky.

The Woman's Auxiliary met in conjunction with the meeting and Mrs. W. M. Martion, president of the State Association delightfully entertained the ladies in her beautiful home. They were also guests of the Cumberland Valley Medical Association at their banquet.

One of the most beautiful concrete roads in the State of Kentucky has just been opened from Pineville to Harlan. The mountains are on one side covered with holly, laurel, pine and cedars, and on the other side is a view of the beautiful Kentucky River.

An account of this meeting is being published so that every county society will be inspired to emulate the Harlan County Medical Society.

MAMMOTH CAVE NATIONAL PARK

Governor F. D. Sampson, working upon the details of organization for the drive to raise $2,000,000 to establish Mammoth Cave National Park, is looking toward speedy and effective action in this matter, which he considers one of the most important that has ever confronted Kentucky. The Governor has accepted the chairmanship of the State Campaign Executive Committee. He did this at the conference of prominent Kentuckians held in Frankfort Wednesday, January 11. At that time announcement was made that the L. & N. Railroad had promised lands in the area valued at half a million dollars, which reduces to two million dollars the amount sought through public contribution. The governor is appointing regional, county and city leaders throughout the state, preparing for the drive. The following statement has been made by Governor Sampson as a result of the conference in Frankfort:

"Kentucky is on the way to real success and has taken the first step in its progressive movement, the National Park project, which is one of the most important things we have ever undertaken. Our wonderful meeting in the Capitol Building Wednesday, bringing together strong leadership and demonstrating intense and sincere interest, has pointed toward a conclusion of which we will all be proud in years to come.

"We know now that Kentuckians want Mammoth Cave National Park; we know they are willing to work for it, and to give of their means to secure it. We are confident that our people of wealth will contribute liberally of their wealth, and that those of lesser means will subscribe all they can.

"This demonstration from Kentuckians, who represented all factions, all districts, all viewpoints and all branches of endeavor, touched me very, very deeply. It has shown that Kentuckians favor the constructive program outlined for the State. It has shown that we can depend upon real support in these things where the great future welfare of our Commonwealth is concerned. It has been a thing of encouragement and inspiration to me as Governor of Kentucky.

"We feel that we can now go forward with the courage of our convictions, knowing that this is an effort deep in the hearts of our people, and that from every side will come the assistance which is absolutely necessary to reach the desired goal.

"To the people of the State I just want to say that we have a uniform plan of action, a plan which has been used with effectiveness in other states. It is a defintely organized effort which will bring success if it is followed. I ask that you give your full cooperation in carrying out this plan; that you conform to it closely so that we will see this vital project mature as we all desire it to do.

"My appeal is also to every potential agency that might lend assistance, whether it be the individual or the organized effort. I ask that every organization in Kentucky—civic, social or otherwise,—join with an interest and enthusiasm worthy of themselves and of the cause.

"I would like to take this occasion to thank the press of Kentucky for its generous aid. Unanimously, the newspapers and other publications have responded to the demand upon their space and their interest in a way which has helped vitally in making it possible for us to go on. Their work has been an educational one of tremendous importance. They have spread broadcast the information concerning the National Park project and its many values to Kentucky. I more than appreciate their attitude. However, their work is not completed, any more than is the work of the rest of us, and we ask that they continue their good efforts in dissseminating information concerning the National Park program so that we may all act with one accord toward this worthy end.

"A National Park will mean tremendous things for the State of Kentucky—more, possibly, than any of us can realize at this time. We have started toward it. Let us continue unceasingly and with determination until we have assured its complete accomplishment."

Let every doctor give his best efforts to this cause. Whatever increases the prosperity of the State reacts upon the well being of the medical profession.

SOME WORDS COMMONLY MISUSED

There are several words in health literature that are commonly misused and their exact definition and spelling are given according to the Standard Dictionary:

Sanatorium, noun, plural *sanatoria,* an institution for treatment of disease or care of invalids; especially an establishment employing natural therapeutic agents or conditions peculiar to the locality, or some specific treatment, or treating particular diseases.

Sanitarium, noun, plural *sanitariums,* a sanatorium; sometimes restricted to a place where the hygienic conditions are prophylactic or preservative of health, as distinguished from one where therapeutic agents are employed.

Tubercular, adjective, relating to, of the nature of, or affected with tubercles; characterized by the presence or development of tubercles.

Tuberculous, adjective, infected with tubercles caused by turbercle-bacilli.

According to good usage, the adjective *tubercular* is used to denote a pathological condition descriptive of the presence of tubercles, while the adjective *tuberculous* is used to describe the general infected condition of the individual. For example, a lung or a kidney may be *tubercular,* but a patient suffering from tuberculosis is *tuberculous.* We speak of the tuberculous of a community but not of the tuberculars. We have institutions for the tuberculous but not tubercular institutions.

Preventive, noun, that which prevents or is designed to prevent or hinder; a precautionary measure; something to preserve health or prevent disease. The word "preventative," according to the Standard Dictionary, which is drawn on freely for all of these definitions, is a spurious variant formed to correspond with such words as "demonstrative," but resting on a false analogy. It would appear, therefore, that the word "preventative" should be eliminated from all public health as well as all other types of literature.

Preventive, adjective, intended or serving to prevent or ward off any kind of harm.

Insanitary. This word appears in the Standard Dictionary, but the word "unsanitary" does not.

Data is the plural form of *datum* and, therefore, requires the plural form of the verb. For example: "the data, as presented, are reliable.

ORIGINAL ARTICLES

A STUDY OF THE RESULTS OF PRENATAL CARE VS. NO PRENATAL CARE BASED ON OVER 3000 CASES IN THE OBSTETRICL DEPARTMENT AT THE LOUISVILLE CITY HOSPITAL.*

By Alice N. Pickett, M. D. Assistant Professor of Obstetrics, University of Louisville Medical School, and Director of Prenatal Clinic, Louisville City Hospital.

Since April 1st, 1923, the Bureau of the Maternal and Child Health of the Kentucky State Board of Health, working under the Federal Maternity and Infancy Act, has cooperated with the Prenatal Clinic of the Louisville City Hospital. This Clinic is conducted under the direction of the Obstetrical Department of the Medical School of the University of Louisville. At the request of the State Board of Health and the Children's Bureau at Washington, this study was undertaken as a means of estimating the value of prenatal care.

Believing that comparison is the only true measure of value, it was decided to study the outcome of all cases treated in the obstetrical department of the hospital, over a given length of time, and to compare the results obtained among the prenatal clinic patients with those obtained among the patients who had had no prenatal care. To make the investigation complete the records of the children born of the two groups of mothers were carefully studied and compared.

All deaths, maternal and fetal, occurring in the department were included. No distinction was made between deaths due to obstetrical causes and those due to causes not obstetrical. This consideration of all deaths from whatever cause offers the only sound basis for such a study. The object of prenatal care is to protect mothers and babies from all danger, medical, surgical, and obstetrical, which may arise during the prenatal period. It has for its object also the anticipation of those complications which may arise at delivery or during the first two weeks thereafter.

In our clinic, for each new patient we take a careful history, especial attention being given to the past obstetrical history. A general physical examination is done, which includes pelvic measurements and estimates. There is also made a Wassermann test, a blood pressure reading and a urinalysis. At subsequent visits we keep a sharp lookout for signs of toxaemia and threatened miscarriage. A blood pressure reading and a urinalysis are done at each visit. Following the abdominal examination we record the size, position and fixation of the baby as well as the location of the fetal heart tones. The patients return at intervals of two weeks for the first seven months and each week during the last two months of the pregnancy. All medical and surgical complications are referred to the respective departments of the hospital for care before delivery. The deaths from tuberculosis, heart disease, and pneumonia have been much more common among the patients not attending the prenatal clinic. In fact there has been only one death among the prenatal clinic mothers which we could classify as non-obstetrical. This case was one of advanced tuberculosis, developing pneumonia during the puerperium.

In marked contrast to the above record, we have had six deaths from non-obstetrical causes among the non-clinic group. Four of these mothers had pneumonia on admission, two of them were cases of advanced tuberculosis, and one was a case of myocarditis with broken compensation.

The deaths reported also include those of patients practically moribund, on admission, for example, those cases admitted in the last stages of eclamptic toxaemia, those exsanguinated from hemorrhage or those exhausted from long labors. It also includes those mothers dying of puerperal infection as a result of delivery or attempted delivery in the homes before admission to the hospital.

The foetal and neo-natal deaths have been considered as a whole also. In other words, the study embraced the actual deaths occurring in the two groups. The greater part of the infant mortality among the non-clinic group cannot be prevented by the staff of any hospital. Premature delivery is the most frequent cause of such deaths. In our hospital all cases of pregnancy admitted to the wards are divided into two groups. Those patients in the first 4 1-2 months of gestation are sent to the gynecological department. These are not considered in this report. Those in the last 4 1-2 months are admitted to the obstetrical department. Thus our infant deaths include those of the babies miscarrying in the 5th and 6th months of pregnancy. The commonest causes of prematurity we have found to be syphilis, hard work, pelvic inflammatory disease and criminal interference.

Besides the babies lost in delivery from obstetrical difficulties, there are included those dead in the uterus on admission. These deaths result from syphilis, prolapsed cord, long labors, hemorrhage, etc. Some of them follow attempts at delivery by outside doctors in the home.

By neo-natal deaths, we mean those deaths occurring during the first two weeks of life.

---

*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

Our babies are turned over immediately after birth to the pediatric department. But a death during the first two weeks of life is justly charged to the obstetrical department, because it is usually the result of no prenatal care, inadequate prenatal care, or to poor technique at delivery. Of course the neo-natal deaths among the premature babies and the syphilitic babies will always remain high, no matter how skillful the care of the pediatrician.

To a municipal hospital is sent the larger part of all the obstetrical emergencies arising among the poor of the city. In such a hospital the percentage of abnormal cases is always high, and the mortality rates, maternal, foetal and neo-natal among the non-clinic group are always higher than those for the city or state at large.

STATISTICAL REPORT.

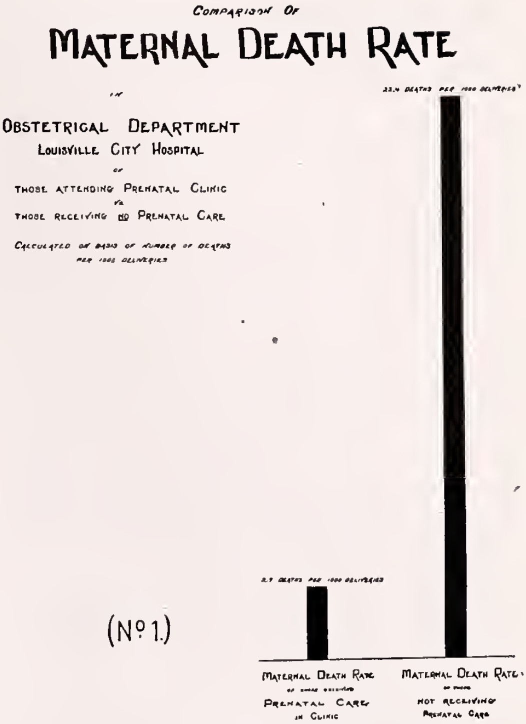
From April 1, 1923 to July 1, 1927, there were delivered in the obstetrical department 3,217 mothers. Of these, 2,061 were registered in the prenatal clinic, 1,156 had never been to clinic and had received no prenatal care. That is, 2-3 of our cases had prenatal care and 1-3 had none. We consider a woman a prenatal clinic case if she has ever been registered in the clinic, even though she may have made only one visit.

Let us consider first the subject of maternal mortality. During four years and three months, among the 2061 patients who attended the clinic we lost six mothers. This was at the rate of 2.91 mothers per 1000 deliveries as against a mortality for the state at large of 6.67 per 1000 deliveries.

During the first six months of 1927, we had no maternal deaths among the 318 prenatal clinic patients delivered.

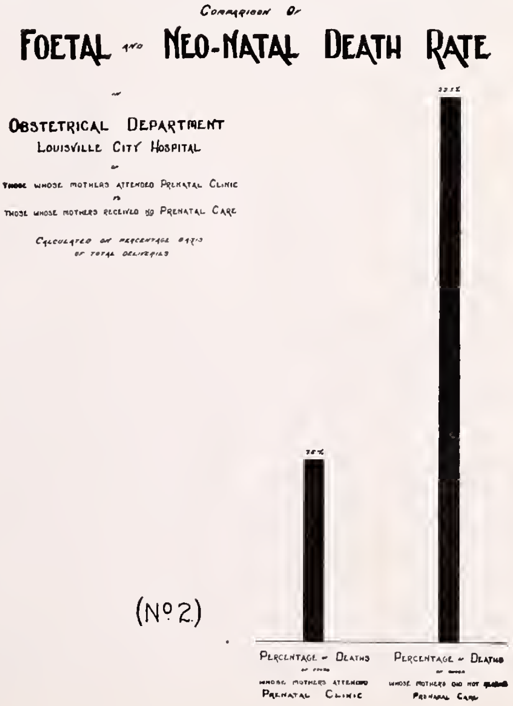
Among the 1,156 non-clinic patients we lost 26 mothers; that is ,a rate of 22.4 mothers per 1000 deliveries. In other words, the maternal deaths were almost eight times higher among the non-clinic patients than among the clinic patients.

Chart No. 1 represents the ratio of the maternal mortality rates in the two groups—clinic and non-clinic per 1000 deliveries.



(No. 1.)

Chart No. 2 represents the relation of the foetal and neo-natal death rates in the two groups. Foetal and neo-natal deaths calculated on the basis of the total number of deliveries show among the clinic patients a mortality of 7.5%, as against 22.6% among the non-clinic. This is equivalent to saying that our foetal and neo-natal deaths are more than three times more frequent among our non-clinic babies than among our clinic babies.



(No. 2.)

Chart No. 3 shows the incidence of eclampsia in the clinic and the non-clinic groups.

From our total 3,217 mothers delivered, we had 47 cases of eclampsia. 35 of these developed among the 1,156 non-clinic mothers, an incidence of 3.02%. From among the 2,061 clinic mothers we had 12 cases of eclampsia to develop, an incidence of .58%. Two of these patients were in the clinic only once, going directly into the hospital for delivery. They were gravely toxic on admission and went into convulsions within the next 24 hours. Three of the 12 had been to clinic only three times. We have never had a patient develop eclampsia when the prenatal care could be considered anything but poor.

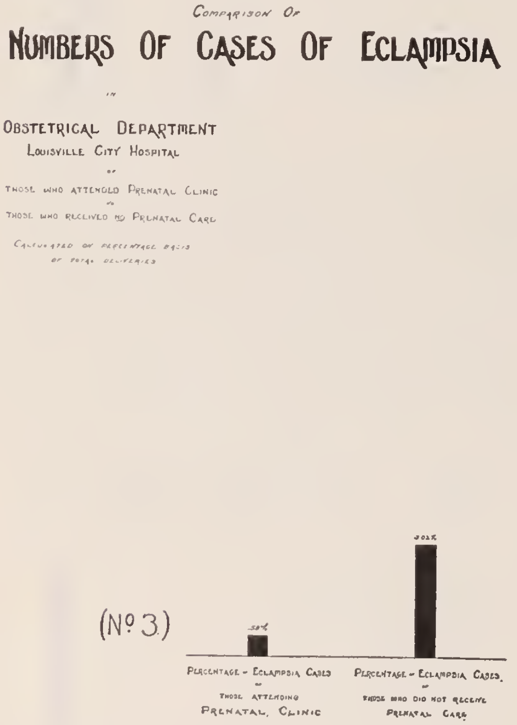
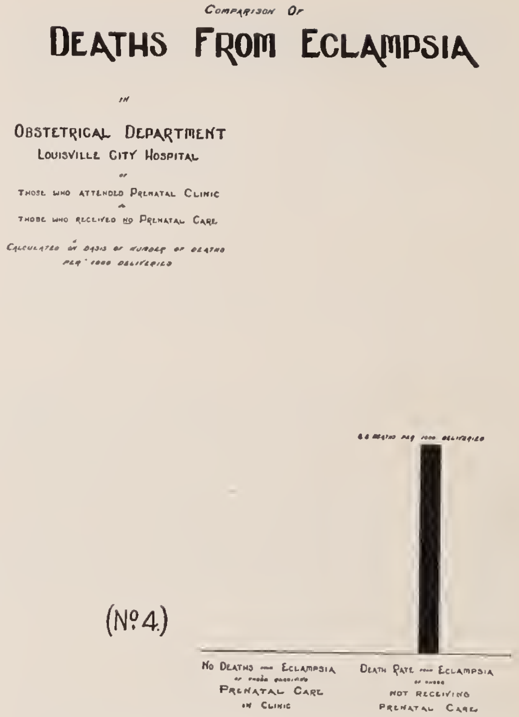


Chart No. 4 shows the ration of the maternal mortality rates from eclampsia in the clinic and non-clinic groups. Of the 12 clinic patients developing eclampsia, none were lost. For these patients the prenatal care had not been sufficiently thorough to prevent development of eclampsia, but it had so far ameliorated the toxaemia that no lives were lost.

Of the 35 non-clinic patients, 10 were lost, a mortality of 28.5%, or 8.5 deaths per 1000 deliveries.



Foot note: Since July 1, 1927 to January 1, 1928, there have been a total of 340 cases delivered and cared for in the Prenatal Clinic of the Louisville City Hospital, making a total for the whole year of 658 cases from the Prenatal Clinic without a single maternal death.

DISCUSSIONS

J. T. Reddick, Paducah: The study and practice of obstetrics has always been fascinating to me. I have been practicing obstetrics for nearly five decades, more than forty-seven years.

When I first began to practice in obstetrics such a thing as prenatal care, I presume, was not dreamed of. It was customary those days frequently for John to come to the doctor and say, "Doc, Mollie is going to need you in a few days. Will you be ready for us?" You older doctors know that to be true, and the first time you saw the patient was when you were called after she was in labor.

We have heard these two excellent papers this morning and we are going to hear another one from Dr. Gossett. Puerperal convulsions is one of the tragedies of obstetrics caused by the eclamptic condition, that toxemia that so many women have formerly been troubled with. Dr. Pickett has given us a graphic illustration of the benefits of prenatal care.

I have been thoroughly converted for a number of years to the prenatal care of my patients, and I have the prenatal care of my obstetrical patients in a great many cases from the time they know they are pregnant to the termination of delivery, and it has been my good fortune not to have had a case of puerperal convulsions in my practice for a number of years. In acute cases that came to me rather late in pregnancy where there was poison I know I have protected their lives, probably saved their lives, by the prompt attention I gave them.

Two, three or four years ago a patient came to me with almost complete suppression of the urine, very nervous, thoroughly poisoned, but by proper care and vigorous treatment I was able to carry her through all right and save her and her baby.

It is a well established fact that all pregnant women should be under medical supervision during their entire pregnancy, for it is only by careful routine prenatal care that pregnancy and labor can be made safe. Every patient requires individual care. Pregnancy is a physiological condition, but there is no condition that may so quickly become pathological.

Eclamptic toxemia may be the hepatic type or the renal type. The hepatic type probably is where we have the general toxemia and the renal type where we have a previous renal condition which leads up to the eclamptic condition. The hepatic type is shown by the prompt return of blood pressure to normal and kidney functions to normal, while the renal type may continue, the urine containing albumen and casts.

The treatment of toxemia of eclampsia is conservative and radical, and I think we are getting away from the radical treatment to a certain extent. By conservative treatment we can avoid the radical treatment. I think there has been entirely too much surgical treatment in cases of eclampsia in the last few years, the caesarean section, abdominal, the vaginal caesarean section and obstetrical operations that could have been prevented and should have been prevented by proper conservative treatment beginning early.

When labor is established and the patient has convulsive seizures, it may become necessary to resort to surgical treatment. Dr. Pickett has so thoroughly covered the ground this morning with her excellent paper and her statistics that there isn't a great deal to be said in addition to what she has given us.

G. G. Thornton, Lebanon: This paper and these charts are certainly eye openers to doctors and would be to the laity if they could be put into the hands of every expectant mother. I was very much interested.

This goes back over 3000 deliveries, a few more deliveries than I have had in over forty years, but I am here to say to you that my experience with conclusions, puerperal eclampsia has been better in the cases that had not had any prenatal care so far as the mortality of the mother was concerned that it has been in the hospital. It has been decidedly better where they have had care in the preventing of puerperal eclampsia than they have had at the hospital.

I stand before you gentlemen as practicing in the country, where often in times past my patients have had no prenatal care, as a man who can declare to you that while I have had probably not as many convulsions as recorded I have never lost a life from puerperal eclampsia. (Applause)

In later years, except under exceptional circumstances, I have refused to take a case that I have not given prenatal care to, or that has not had some doctor engaged, and I presume he has given the prenatal care.

W. T. McConnell, Louisville: You folks didn't discuss my paper so I didn't get a chance to talk. I hoped you would because in the teaching centers, such as Louisville, we want to know what the problems of the men are in other places, and it is just this sort of place where, if you bring your problems up here and discuss them and thrash them out, we who are in the centers doing teaching are in a much better position to train the young men as they go out to meet the needs as they exist. I was in hopes you folks would discuss some of the problems that I mentioned and give me your views on them.

I want to tell you that there is no over-statement in these statistics. These figures, if anything, are far too conservative. I have been on that city hospital service for the last nine years and I have had ample opportunity to know what is going on in that clinic and the results of it. The fact that the women who go through that clinic have come up by the thousands without a single case that has had adequate prenatal care developing eclampsia certainly means something. When one of the patients who goes through Dr. Pickett's clinic comes up to the ward for delivery, there is the whole picture of that patient's condition, history and everything that is known about her that will help us make the delivery and take care of her on the ward. All of this is done in this prenatal clinic. The patients who come in to us without that prenatal care can be likened to trying to sail a ship without chart or compass, and we have to do the best we can; it is a survival of the fittest.

It would take up too much time to enumerate all of the advantages of prenatal work. I have mentioned it briefly in my paper, but I wanted to let you know that these figures were absolutely conservative, there is nothing padded about it, and I wish every doctor here in Kentucky and the United States could study this little sheet right here. That is a wonderful little sheet of paper and if we can study that and realize the import of it, we all would do better obstetrics.

A. T. McCormack, Louisville: I want to violate the proprieties again to say one word in explanation. The patients in this clinic are Louisville's poorest and most neglected people in all other respects. Dr. Thornton's patients are private patients that are able to employ him in a large measure, but he does his share of the other kind.

The difference between the well nourished individual in a home and the patient that comes to the clinic of the City Hospital from the slums is tremendously different, and the figures that Dr. Pickett gives are of interest as showing the Christian care extended to Louisville's poor with the highest degree of science.

The important part of Dr. Pickett's contribution is not the relative figures, as remarkable as they are, but the fact that heretofore nothing of that sort has been done for any class of patients.

ORTHOPEDIC CONSIDERATION OF THE CHRONIC ARTHRITIDES.*

By John D. Trawick, M. D., Louisville.

An epoch was marked in the history of the treatment of Arthritis by the general recognition of the part played by focal infection. "Rheumatism" had for so long occupied the stage that practically every joint affection no matter what the characteristics, was being catalogued after the name of the all inclusive relic of the days of superstition and witchcraft and was being treated by the classic salicylate and potassium routine.

About 1900 with the isolation of the diplococcus rheumaticus, rheumatism was designated as a very definite disease and less tendency was shown to allow it to occupy the entire stage.

However, even today we find some remaining tendency to brand every joint affection as rheumatism, and all of us know into what serious error this fallacy has led us. Witness the disaster visited upon scores of children by calmly looking upon a sore knee, or a painful hip as "rheumatism," until the tuberculous process which has been at work from the onset has wrought its direst destruction.

With the clear demonstration of focal infections as origin for certain forms of chronic arthritis, and location of these foci chiefly in teeth and tonsils there came about new enthusiasm in the study and treatment of the arthritides, and very positive gain was made in the fight waged against the disease.

Case 1—Miss A. M., 47 years of age. This is the type that must be "continually downright". Probably the so-called "Arthritis of the Menopause."

However, if we will study our cases of the past few years we will find toothless and tonsilless arthritics, some even with deeper scars of "exploratory operations," drained gall bladders and stumps of appendices, who are stiff in their arthritic fixations, and not one whit better but perhaps made worse by our honest but misdirected zeal. The vast army of arthritics that could be recruited from our industrial hospitals, from our homes for incurables, from the chronic wards, from orthopedic clinics, and out of private homes into which they have gone and there have lain through weary months and years of hopeless invalidism, might the most of them, show that teeth had been extracted and tonsils removed and that their distorted bodies had been scoured for possible "foci", and yet, their arthritis continues stubborn and unabated.

We are facing a newer era. The theory of focal infections does not satisfy all our cases. More than that, we are ready to declare that we do not believe focal infections will account for more than a comparatively few.

Recently Osgood very incisively remarked: "We do not feel that the surgical removal of possible foci of infection has been followed in the majority of cases by the improvement in symptoms for which we had hoped, and which the patient had been led to expect, surely not in the advanced type of a case which usually consults the orthopedic surgeon. It is undoubtedly of importance," he continues, "to remove surgically or medically any focus of infection which may reasonably be held responsible for any lowering of the general resistance, just as it is important to adjust any discoverable endocrine disturbance or correct faults of body mechanics, but we suggest, that the reason for these procedures be made clear to the patient. And that we stay the surgical and dental hands of our confreres unless they can *assure us that the foci of infection are affecting the general health of the patient, and are not simply themselves expressions of the lowered vitality for which there are other causes.* If we expect joint recovery to follow even well demonstrated foci, in a large proportion of cases, we are doomed to disappointment. We must not be deceived by the immediate amelioration of subjective symptoms and even objective signs which follow the sudden changes in metabolism which anaesthesia and the intravenous injection of the non-specific proteins bring about. We ourselves were deceived at first by the happy changes which for several days or weeks followed the surgical removable of possible foci, until with the patients' consent, we profoundly etherized several of them and did nothing else."

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

In other words, perhaps the so-called focus of infection is but an incident in the constitutional disorder that is producing it, as well as the arthritis. What good is there then accomplished by removing a focal expression of a general systemic complex, hoping thereby to change the entire expression in the individual.

Case 2—Lillian, 19 years. This is one of the most pathetic because nothing seems to relieve her suffering, except diathermy and heat from Infra Red Lamp.

Lillian, 19 years of age. Case 2.

This must not be understood to disclaim the responsibility of foci, for the part they undoubtedly play in chronic infectious arthritis. Osgood's statement does give comfort to those of us who have recently become convinced however that there are other avenues still unexplored and causes not yet uncovered to account for arthritis remaining, and going ruthlessly on to ever increasing deformity long after every possible infective focus has been removed.

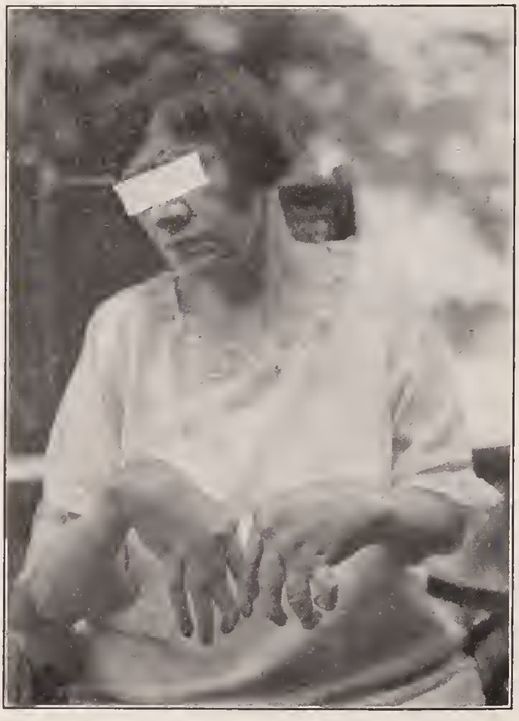
Men all over the country are searching out these avenues. Earnest thought is being given to research into causes, endocrine, intestinal, mechanical, hereditary, where ever there may be a clue.

It is earnestly to be hoped that relief may be found, for next to cancer, there is no more pressing medico-social problem than that of the arthritics. It is no new observation to make that to a very large extent our confusion is being confounded by the babel of tongues in the classifications of the disease.

We have found many a good paper on this subject, labor for so long through a maze of "classification" and "grouping" that our interest wearied long before the author had said what he really started out to say. We have no controversy with the "classifications"—we simply know that it is very poor science as well as poor diagnosis to state that a patient has "arthritis". This is no more informing than to state that he has a "fever", or "rheumatism."

The degree of knowledge that reaches only that indeterminate diagnosis is just sufficient to go so far as to advise the patient to have his teeth and tonsils attended to—and it stops there. The patient probably finds himself after a while *without teeth, tonsils or relief*.

"Specialists in the various branches of medical science have classified the different types of arthritis on the basis of evidence with which they happen to be familiar. The bacteriologist, the pathologist, the clinician interprets his findings from the standpoint of his particular specialty. These classifications however have been of little value to the general practitioner anymore than have the methods of treatment." "Chemical and physical means are but palliatives, correction of metabolic disturbances merely increases resistance to continued infection; immobilization of joints by means of casts interferes with the normal circulation of the bone, while immobilization by surgical means is often the direct cause of poly-arthritis. The removal of accessible foci may sometimes effect a cure but it is evident that such methods are useless in case of inaccessible foci, as in vital organs, or more generalized infections. Vaccine therapy which theoretically ought to be the best means of treating (during) arthritis, assuming the disease to be of infectious origin, has thus far not proven generally successful. Although striking results have been obtained in isolated instances."



Case 3—Mrs. M., 46 years of age. Both hands flexed at wrist, dislocated, with marked distortion.

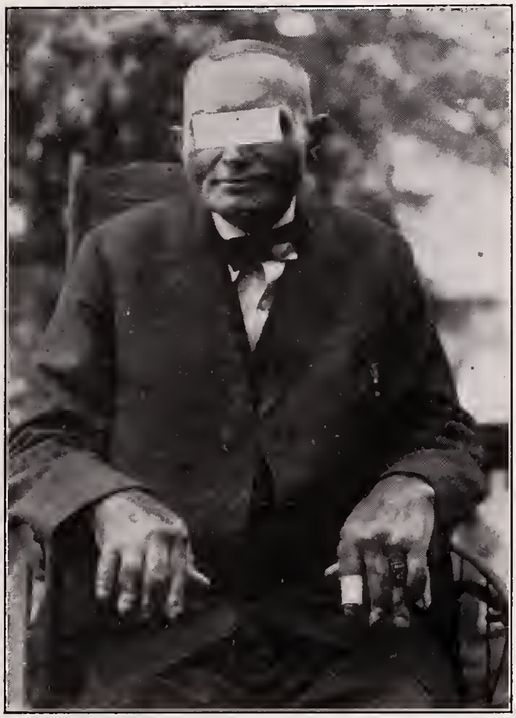
Case 3—Mrs. M. 46 years of age.

Thus we are finding our field with an ever broadening horizon, through which many paths lead. It is true there are as yet trackless spaces, but trails have crossed and recrossed until we are confused. Is it not now time that the various specialists begin to get together? Perhaps there can come about an agreement on at least some terms both of classificaion and of etiology, with the ultimate hope to be realized that cures may be accomplished.

"We must agree that up to the present the bacterial field seems to be the most logical as well as the most promising one for investigations on arthritis." That is, that primarily the cause of the disease was bacterial in by far, the larger proportion of cases. It may be yet proven, though now it is frankly a doubtful question, that cartilagenous and bone changes in the advanced types for instances of the hypertrophic group, or of the so-called osteo arthritic group, have been brought about by bacterial invasions of the joint areas.

Very interesting investigations are being reported, and we shall withhold judgment expecting still further developments.

We are compelled therefore to consider our cases in the simpler groupings. It is not necessary to go minutely into the details of treatment of all types of acute infectious arthritis, but to consider the chief points.



Case 4—Mr. F. A., 57 years of age. The left lower extremity is slightly flexed at knee. This flexion deformity is gradually increasing.

Gonorrheal arthritis is perhaps the most common of the acute type. A positive smear shows the Neisserian infection. A monarticular involvement with a peculiar haziness of the x-ray picture showing no bone or cartilage destruction, are the essential factors in the diagnosis. We are very ready to commend the early opening of their joints, at the same time giving the anti-gonnococcus vaccine intravenously. Opening wide the joint, particularly the knee, for this is the most frequently involved, washing out the fibrilous lymph, then closing, putting the leg into plaster cast, offers a very encouraging line of treatment. The cast is bivalved and in ten days removed for heat, massage and motion, then reapplied, the process being repeated at shortening intervals.

Tuberculous arthritis should have early rest and fixation with vigorous treatment of the general type to encourage bodily resistance.

Traumatic arthritis followed industrial injuries, fractures, dislocations and lacerations must be recognized and given early physiotherapy, heat by means of the Zoalite, radiant heat, diathermy, with active and passive motion early begun. Since the introduction of the ultra violet light with diathermy and heat lamps into our equipment we have been able to send back injured employes with functioning painless joints in one-third of the time that formerly was required.

The next group to be considered here, is what Ely calls the "second great type' of arthritis. This includes the hypertrophic, degenerative, chronic infectious, osteo-arthritis, arthritis deformans, poly-arthritis, etc., of the various classifications.

It is to this large and ever growing group that the statements made in the very beginning of the paper apply.

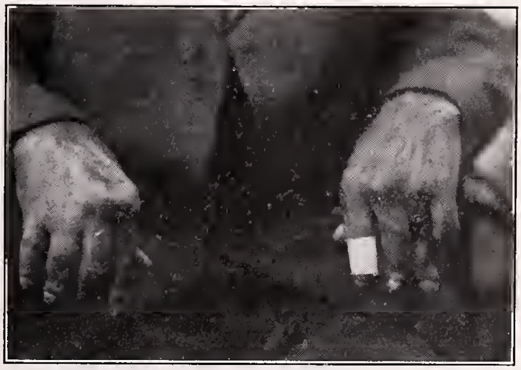
While infection has no doubt played a primary part in the production we cannot accept it that they are solely due to, and dependent upon, a possible focus of infection which if eradicated, will produce a cure.

We have studied this group earnestly and have for a long time sought out means of relief.

From this group we find recruited the growing mob of cripples already referred to as a very real medico-social problem.

We find them in every hospital chronic ward, in all orthopedic clinics, in homes for incurables, kept by church societies, supported by weary friends and relatives, eagerly thrust out into any school, or institution that will take them and thus relieve their former caretakers.

What can be done for these? How to give them relief? How to make themselves self-supporting? How to relieve their joint fixations, and their distorting contractions, so that if possible they may make even part of a living? These are the questions that confront us. I dare say there is not one of you, but has had some Rotary or Lions or Kiwanis Club urge you to take over the conduct of treatment or supervise the transfer of a chronic arthritic out of their wearying care into some other haven. Here the orthopedic surgeon finds his burden. For unfortunately to him they come trooping, usually after they have been everywhere else, passed on out of your capable hands into the care of those less worthy to minister—into the grasp of the charlatans and the quacks. They found him perhaps with a little money saved out of his labor, with their ghoulish hands, clawing



Case 4—Mr. F. A., 57 years of age. Note the Heberdeus Nodes.

about his stiffening joints urging their treatments through months of futile promises of relief, they have at last squeezed him bone dry. His funds exhausted, his home sold, his family impoverished, they have thrust him out and left him there on the human dump heap a wreck, a distorted human being, miserable, dependent!

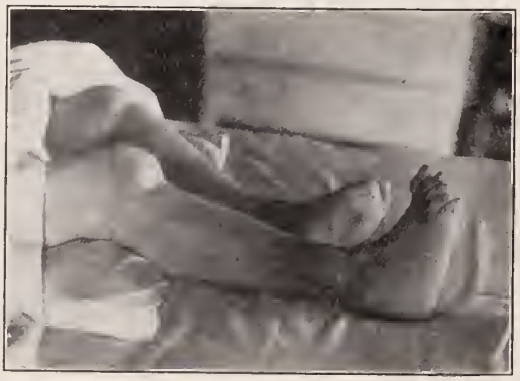
Surely here is problem enough for every group of specialists to unitedly study. Here is scope for organized effort. The orthopedic surgeon may contribute something to the internist and both find their knowledge increased by the patholoigst, all three welcoming the bacteriologist into the conference. Wisdom shall perhaps not die with either of us, not one or the other claim to have all knowledge.

The chronic hypertrophic arthritic joint has been found in skeletons of men who lived in 1300 B. C. unearthed in Egypt, showing lipping and exotoses. Heberden in 1803 described the nodes which bear his name, appearing in the terminal phalangeal joints.

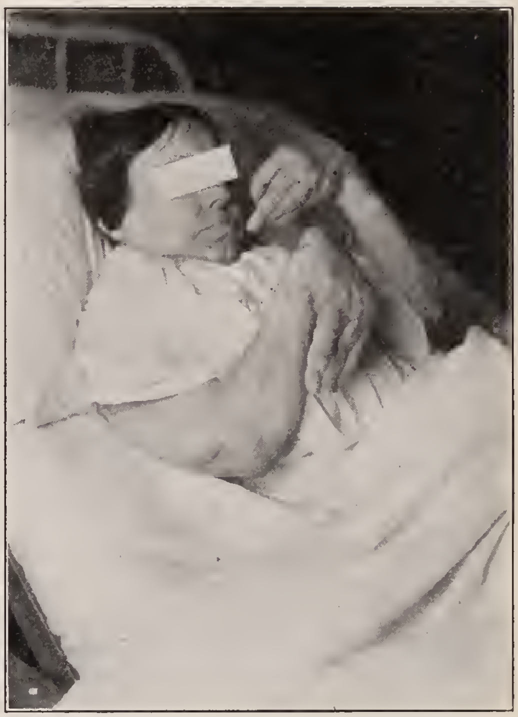
The spine, shoulders, wrists, hands, hips, knees, ankles, all may be involved, but more particularly those joints that endure weight bearing.

Pain is an early and constant accompaniment in fact it is doubtful if some arthritics ever had relief from pain since their disease began. Certainly not while the inflammatory process was active within the joint capsule, while cartilage and bone were being involved. With some however there came less of pain when gradually erosion of cartilage had occurred and bone had joined to bone, with firm ankylosis and further immobility of the joint. Fixation and loss of function were the price to pay for relief from pain.

In others there were through the weary months and years, a continuous contraction of muscle and tendon with no kindly restraining force or counter pull. Joint surfaces became ivory like, eburnated, glistening and smooth. Dislocation occurred, fingers, hands at wrists, knee joints, subluxed, and held in fantastic distortion—utterly useless.



Case 5—Miss H. B., 50 years of age.



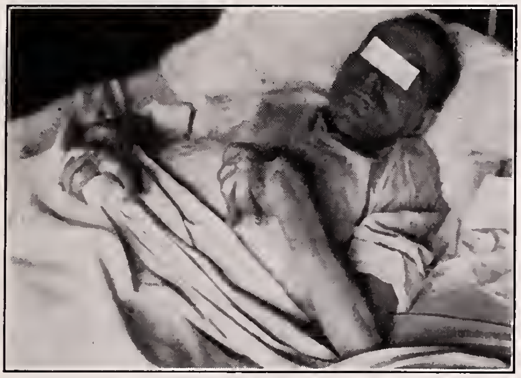
Case 5—Miss H. B., 50 years of age. Note the ankylosis at elbow, and dislocation at wrists also, subluxation both knees, ankylosis at ankle joints, nodes in toes and fingers.

The orthopedic conscience recoils at this. It is entirely repugnant to think of deformity occuring that might, perhaps, have been prevented. Even though there may not have been a remedy for the process, a light mechanical support could have no doubt, been used to prevent dislocation. Or an elbow or a knee, or a hip joint in which the process of ankylosis and rapid deposit of callous occurred might have been placed in an angle of election, and the ankylosis which seemed inevitable could have occurred with the elbow flexed at a convenient angle rather than in helpless extension, or the knee at a walking angle, or the hip placed so that standing perpetually might not have been necessary, nor sitting, a permanent condemnation.

Osteo-arthritis of the spine with the consequent lipping and fusion of the intervertebral spaces wih production of the erect, false immobile carriage so characteristic—the so-called "poker back '—calls for early orthopedic attention.

By position and release of body strain with a gentle but persistent extension of the whole frame we have seen these flexed distorted bodies become more mobile, and respond more readily to the systemic treatment, elimination, tonic and otherwise which had been instituted.

Of drugs there is little to say, aspirin and



Case 6—Mr. C. H. E., 54 years of age. Duration of disease, 10 years. Note profound subluxation at wrists with strange distortion of fingers. Back is absolutely stiff, knees flexed and ankylosed, ankles fixed, toes ulcerated.

the salicylates are useful in any joint inflammation but at no stage do they exert a curative effect.

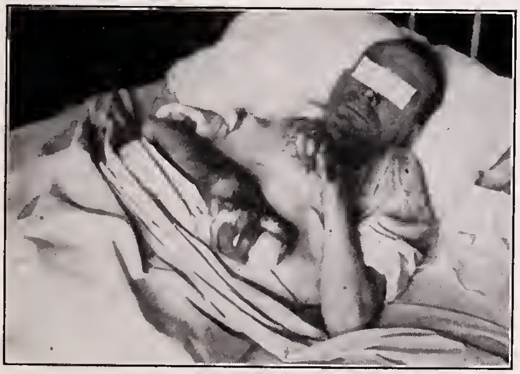
Iodoxybenzoic acid is reported in forty-three cases to have given "marked improvement" in twenty-four.

Thyroid is undoubtedly indicated in most of these cases because of the low basal metabolism.

Bacterial vaccines are being used by some with encouraging results—by others with no encouragement at all. Ely reports an interesting group of cases being treated by emetin by reason of the amoeba hystolitica found in each.

Physio therapy has gained a permanent place in the treatment. Diathermy, heat by radiant therapy lamps, Zoalite, etc., the ultra violet light particularly useful in the anemic and low vitalized group—all are useful adjuncts and in guided hands are doing all day duty for some of us.

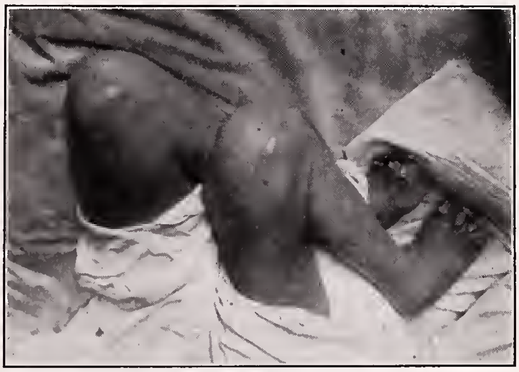
Occupational therapy should be mentioned, because of the undoubted good done these chronic invalids by giving them something to do. It is a long weary day at best, but the hours drag less heavily if the patient be taught to weave or knit or sew or repeat over and over some necessary motion called for in working out the problem or the job given by the aide.



Case 6—Mr. C. H. E.

Occupational therapy has come to occupy a permanent place in the equipment of every institution where chronic patients are kept. I know of no more useful field than in the chronic arthritic ward.

Orthopedic surgery has done much to relieve, if not cure, the deformities that have resulted by the distortions of Arthritis. The operation devised by Jones for producing a pseudo arthrosis or false joint at the hip, the reconstruction operation of Whitman, and the section of femoral neck described by Osgood have produced wonderfully comfortable hips allowing the patients to walk, or sit down. Osgood remarks, "It is a fearful hardship to be continually upright or downright. To be able to receive attention without attracting it is a good thing." To quote Pemberton, "One of the outstanding considerations in the treatment of chronic arthritis is the appreciation of the fact that a combination of measures may succeed when any one of these measures alone would fail. There is no panacea for arthritis, and those who pin their faith to a single measure evidence thereby a failure to understand the problem as a whole. From the orthopedic standpoint perhaps nothing should be urged more insistently than the prevention of deformity.



Case 6—Mr. C. H. E.

"Nearly every case which is gnarled up is a reproach to the profession. We cannot prevent all deformities but we can prevent most of them" and if our measures shall succeed, they must be begun before the contractions and callus have become permanent.

In order that a clear impression may be left of the unfortunate results of incomplete or inefficient treatment or perhaps, no treatment, of the chronic type of arthritis, here is being shown a short series of cases which came into one institution, with their deformities well advanced.

Now all that can be done is to palliate, nothing can be accomplished to overcome the disasters herein pictured, some of which frankly might have been prevented.

They are shown only with the idea of leaving a permanent impression of what should not have occurred, as well as to give definite evidence of the ultimately crippling and disabling effects of arthritis.

CASE REPORTS.

Case 1. Miss A. M., 47 years of age, factory worker. This patient began to feel pain in arm about two and a half years ago, since then both hands have become involved. Her feet, fingers and hands swell at times, lower extremities flexed at knees and hips. Patient has the usual hospital record, going from one place to another until at last she is in an institution with many like herself. She is the type that must be "continually downright." Probably the so-called "arthritis of the menopause."

Case 2. Lillian, 19 years of age. Onset at age eight, beginning in little finger, right hand. Gradually both arms, wrists and shoulders became involved, then both legs, fixation in all major joints. This case is one of the most pathetic because nothing seems to relieve her suffering, except diathermy and heat from the infra red lamp.

Case 3. Mrs. M., 46 years of age, housekeeper. Onset at twenty-three years of age, after the birth of her first and only child. Began to complain of pain, and swelling of both feet, left foot became adducted, hands and fingers swollen. Gradually the whole hand was involved. At present both hands are flexed at wrist, dislocated, with marked distortion. Patient claims that tonsils and teeth have always given her trouble. Came into this instituion wih her deformities about as shown. During her stay she developed an acute appendicitis, which was operated, with temporary improvement in arthritis.

Case 4. Mr. F. A., 57 years of age, brickmaker, seaman. Onset at twenty-six years of age. Pain in the big toe of right foot, the toe became inflamed and later sluffed off. Amputation done at metacarpal joint. About this time the hands became affected, fingers swollen, joints stiff, and most of the fingers flexed and nodular. Patient complains of constant pain. At present the left foot is swollen and a small ulcer is present at the base of the big toe. The left lower extremity is slightly flexed at knee. This flexion deformity is gradually increasing. Note the Heberdens nodes. Patient admits syphilis at an early age. His life has been very irregular, and he has been an excessive user of alcohol. He states that two cousins are suffering in a similar way. On several occasions, the interne has stopped patient from operating on his own fingers with his pocket knife. Rather enjoys "picking out" the callous material in his nodes.

Case 5. Miss H. B., 50 years of age, housekeeper. Admitted to one hospital five years ago with "rheumatism" and after two years was passed on to another institution. General health, good. Patient while walking felt sudden pain in left knee, it gradually stiffened, legs became flexed, and knees dislocated. Right arm and shoulder next affected, later the left arm was involved. Patient cannot turn in bed. With great difficulty she manages to feed herself. Note the ankylosis at elbow, and the dislocation at wrists also, subluxation both knees, ankylosis at ankle joints, nodes in toes and fingers.

Case 6. Mr. C. H. E., 54 years of age, machinist and musician. Duration of disease, ten years, starting in the left leg and then involving the ankles, wrists, toes, fingers, elbows and back. He was admitted to the City Hospital and after nine weeks was dismissed "somewhat better" then after a few months he went to a private hospital. By this time he was unable to walk or even move about in bed. Later admitted to Waverly Hills, after eighteen months was admitted to Home for Incurables, where he has been for five or six years. Note profound subluxion at wrists with strange distortion of fingers. Back is absolutely stiff, knees flexed and ankylosed, ankles fixed, toes ulcerated. Strangely this is one of the most cheerful patients in the institution.

Hypertension of Pulmonary Circulation.—Moschcowitz believes that hypertension of the lesser circulation is common. It passes generally under the name of "pulmonary congestion" and "right sided insufficiency," or "arteriosclerosis" of the pulmonary vessels." It is caused by any lesion that increases the peripheral resistance within the lesser circulation. The most common causes are mitral disease, espescially mitral stenosis; emphysema, whether primary (senile) or secondary (asthmatic); infiltrating lesions of the lung (chronic tuberculosis with induration; bilateral pleural synechiae; chronic interstitial pneumonia, tumors); kyphoscoliosis; patent ductus arteriosus, and communications between the two sides of the heart. A sustained hypertension of the lesser circulation leads to arteriosclerosis of the pulmonary vessels. The physical signs of hypertension in the lesser circulation are those brought about by the compensatory mechanism.

PYELITIS OF INFANCY AND EARLY CHILDHOOD.*

By Thomas W. Marks, M. D., Lexington.

Pyelitis as a disease was first described by Rayer, a French physician, in 1837. Huttenbrenner in 1876 first called attention to the frequency with which the disease occurred in infants and young children. Later, investigators, after the microscope came into common use thought the disease to be confined to the bladder and because of the frequency of the colon bacillus as the causative organism called the condition colicystitis.

This error was partly due to the low mortality giving but little chance of post mortem study and partly to the fact that only relatively recent improvements in the modern day cystoscope have made ureteral catherization of infants possible, showing that in cases of pyuria there is usually an inflammation of one of both kidney pelves.

To see the need to emphasize the importance of pyelitis in infancy and childhood you have only to realize that with the exception of common colds and gastro-intestinal disturbances it is one of the commonest diseases of childhood and the most frequently overlooked, because of the indifference to the necessity of the routine examination of urine in all acutely ill infants and young children. This has been due chiefly to two factors—the difficulty of obtaining the urine, and second the absence of any symptom or sign of the urinary tract as the seat of trouble.

The causative organism of pyelitis is as a rule the colon bacillus group, but it may be one of the streptococci or staphylococci, in fact a great variety of organisms have been mentioned. When there is no organism found and but little response to treatment the tubercle bacillus is the probable offender, making ureteral catheterization and guinea pig inoculation imperative. Even though the majority of these cases are seen and treated in the home the collection of a specimen for cultural and microscopic examination is not difficult if you get the cooperation of the mother by impressing upon her the importance and showing her just how it should be done—cleaning the parts and attaching a sterile test tube in the male and a small sterile flask in the girl. If the specimen obtained in this manner is unsatisfactory it is not such a difficult task to catheterize the bladder using a No. 8 French catheter, especially as a large majority of the cases are in girl babies, some observers claiming as high as 95 per cent, or even 100 per cent of their cases being in girls. In nearly two hundred cases of my own there were only five males—in two of these the organism recovered was staphylococcus aureus secondary apparently to a recent crop of boils.

Never advise the use of a cotton pledgelet, or sponge in collecting a specimen as it might retain the pus cells and is useless for culture. It is not necessary to obtain a large amount of urine for examination as the finding of over eight cells to the high power field in the uncentrifuged specimen is of just as much significance as the finding of many muddled cells in the centrifuged specimen.

Pyelitis has been termed by many as the disease of the diaper age as the frequency of occurrence rapidly diminishes at the age of two, being rarer but more serious in older children. The majority of cases are around the age between 12 and 18 months, the recent literature is filled with the importance of the role this disease plays in the newborn infant and advise that pyelitis be strongly suspected in cases of unexplained temperature. My youngest case was a three-day old male whose mother had had the disease at the seventh month of pregnancy and whose urine contained pus and bacteria without temperature or other symptoms throughout the remainder of the pregnancy. The two next youngest were 6 weeks and three months respectively.

There has long been argument as to the mode of infection in pyelocystitis, there being two lines of thought—hematogenous infection and ascending infection—the disease has been produced experimentally both ways, i. e., by blood stream inoculation and also by bladder inoculation infection of the ureter or kidney pelvis found later on. Positive blood cultures have been obtained in a good percentage in some series of cases lending caste to the hematogenous theory which is discounted by the high percentage of cases in baby girls (57 to 95 per cent) as compared to baby boys, which anatomically favors the ascending theory during the diaper age. Suffice it to say that probably the majority of primary infections are hematogenous while the majority of those cases following acute gastroenteritis in the summer months are of the ascending type.

The main characteristic of acute pyelitis in childhood is an acute onset with fever—there may be no other sign of illness, though generally in the severe cases there is an ashen pallor peculiar to kidney retention and an unexplained restlessness. There is as a rule no symptom referable to the urinary tract, even in the severe cases—bladder symptoms are present in only a small per cent—there is commonly vomiting at the onset and occasionally convulsions simulating an acute gastro-intestinal upset, but as a general rule there is an acutely ill child with high fever, pallor, restlessness without urinary symptoms and with negative physical findings until urine examinations reveal the cause of trouble. When a case presents such an entity a diagnosis should always be made even before a urinary examination.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

There is always present a varying degree of prostration—the younger the child the less likely local symptoms to be present, but there may be frequent and painful urination with pain over the bladder and colicky pains over the abdomen. It is the absence of these local symptoms that make it essential to look upon any unexplained temperature, after otitis media has been ruled out, as pyelitis until proven otherwise by repeated negative urine examinations.

Pyelitis should always be suspected as a complication of acute infections and gastro-intestinal disturbances which do not respond properly to treatment as it frequently complicates both conditions. Pyelitis may be divided into primary and secondary forms; the primary form being the uncomplicated as a previously healthy baby who becomes suddenly acutely ill with high fever, pallor, restlessness and an absence of physical findings. The secondary type develops during an attack of gastro-intestinal disturbance, or after some acute infection as that of the upper respiratory passages, or following any of the contagious diseases. Cases may occur without temperature, in these cases there is usually available a suggestive history of a recent acute illness not diagnosed, in other words has become subacute or chronic. Relapses, or acute exacerbations are quite common in these cases. It is hard to differentiate a recurrence from an acute exacerbation of the old infection and it may be logically surmised that such adult infections of pregnancy might be from the old infection of infancy and this will not be cleared up until we begin to look more seriously upon this condition and refer those symptomatically cured cases apparently cured but with persistent pus cells and bacteria in the urine ,to the urologist for cystoscopic examination and treatment after medical treatment has failed to clear the urine. It is into this group that falls the so-called half sick child who is irritable, nervous, anemic, underweight and with discriminating appetite—with negative chest findings. This entity is often blamed upon the tonsils with no improvement after removal.

In cases of pronounced pyuria it is well to examine the parts for evidence of gonorrheal vaginitis and in all cases where there is the slightest suspicion repeated smears should be taken. I recently treated a chronic gonorrheal infection in a girl of five years of good family and surroundings, as case of pyelitis over a ten day period before making an examination and finding the real seat of the trouble. One more important factor in the urine examination is that the attending physician make his own observations from time to time, not relying upon some one else's report for the report of one not familiar with the clinical side of the case is of but little value in the following of a case under treatment. There are at the present time since the advent of Hexylresorcinol, or Caprocol, three plans of medicinal treatment, namely:

(1) The alkaline treatment.
(2) The acid-urotropin treatment.
(3) The hexylresorcinol treatment.

Opinion is about evenly divided as to the relative merits of the alkaline and acid urotropin treatments with the final conclusion that the age of the child and the severity of the acute symptoms as well as the causative organism should be the influencing factors in choice of the method to use. If reasonably sure that the child is passing a small output of urine, refusing liquids or vomiting what is given, the acid-urotropin treatment is contraindicated for several reasons.

It must be given by mouth and in practically the same dosage as in adults and followed by some intake of fluids to obtain best results. This is not alone difficult, but is very apt to increase the nausea and also due to the small amount of urine in the pelvis of the kidney, the urotropin dilution in the pelves is apt to be too high, thereby increasing both bladder and kidney irritaton. Of course this contraindication could be overcome by giving the necessary fluid by bowel or hypodermoclysis, this complicates matters unless patient is in the hospital. If urotropin and sodium acid phosphate are given in this type of case the initial dosage should be small and gradually increased as the urinary output is increased and the severity of acute symptoms subside.

I have gotten the quickest and best results in these cases of high temperature and acute symptoms, especially in young infants with the alkalinization method, using potassium citrate by mouth and sodium bicarbonate by bowel. By this means fluids promoting prompt diuresis are gotten into the body in the easiest possible manner, the alkali also tends to alleviate the gastric disturbance and to offset the acetone practically always present early in these cases. After the acute symptoms have subsided and you are able to promote a more liberal fluid intake the treatment may be changed to the acid and urotropin if the urine does not clear with the alkali.

In the ordinary acute uncomplicated case with sufficient urinary output good results are obtained by forcing fluids and giving urotropin in average doses of 20 to 30 grains in 24 hours, stopping at the first appearance of bladder irritation and if at this time the urine is not clear changing to potassium citrate 60 to 90 grains in 24 hours, until the urine is decidedly alkaline to litmus and then continue enough citrate to keep it so.

There is nothing to fear from large doses of potassium citrate and if alkalosis should be evidenced by puffiness of face, hands, feet, etc., the dosage can be reduced and no harm done. Whether the alkaline or acid urotropin method is used free intestinal elimination should be maintained throughout.

Hexylresorcinol as a urinary antiseptic was first tried by Leonard in 1925. His experiments showed that its bactericidal action was equally effective in alkaline and acid urines and that it was not only necessary to force fluids, but that the forcing of fluids was a detriment to its action through the reduction in surface tension, making it an ideal preparation for the pediatrician. For administration to children it is put up in a 2½ per cent solution in olive oil, making a strength of a grain and one-half to the dram. The duration of treatment with this drug is from 60 to 120 days, graduating the dosage according to the progress shown by symptoms and urinary examinations, the usual dosage being from one to three teaspoonfuls from three to four times a day; dose reduced if gastric discomfort or vomiting produced and should never be given upon empty stomach.

My experience with liquid hexylresorcinol has been only in chronic and subacute cases after repeated treatment with both potassium citrate and urotropin had failed. The slowness of the drug's action seems to contraindicate its use in the acute stage as the acute symptoms can be so readily relieved by either of the other methods, choice depending upon the cases and if the urine can be cleared, the patient symptomless and back to routine in two or three weeks time, it is foolish to use a much more expensive, 60 to 120 day treatment to reach the same end. On the other hand the results gotten in the chronic case in which the urine does not clear with the shorter methods highly recommends its use, there often being a marked general improvement even when there is no apparent bactericidal benefit. In seven of twelve chronic cases in which I have used it after the failure of shorter methods a cure was obtained and with some improvement in the general condition of the remaining five.

Those cases in which no cure is obtained by medicinal methods should always be referred to the urologist for cystoscopic study. There may be only a slight ureteral stricture that will be relieved by the ureteral catheterizaiton, giving an almost spontaneous cure or there might be some more serious complication the earlier discovered the better chance for a good result.

DISCUSSIONS.

James H. Pritchett, Louisville: Dr. Marks' paper presents the last word in pyelitis. He covered it so thoroughly that I can only emphasize the more important features.

A great many of the so-called initial fevers in the new born can be traced to pyelitis. This is a new theory, and I am sure it is a correct one. Those of you who were so fortunate to have heard Dr. Barbour's paper two or three years ago on fevers of obscure origin recall that at that time he stated a great many infants upon examination had pyelitis, and it is true according to Dr. Marks' paper. It may take several urinalyses to prove that the child actually has pyelitis.

As he also stated, the sex most commonly affected is the female although in early infancy, according to Abt, it may be equally prevalent in either sex. A peculiar pallor, more or less chilliness, I might say rigor, with the sudden onset of other symptoms being obscured, should give us at once a clue to pyelitis and we should examine the urine at once.

It is quite true that the obtaining of a specimen of urine in a child is difficult and for this reason is oftentimes neglected. If you will follow Dr. Marks' outline you can obtain a specimen of urine in the majority of cases. It requires but a small amount of urine to find the trouble.

With reference to the prognosis, that is a good point to bear in mind. As to cure, most of them do recover. Some few of them take quite a while to recover. A great many of them will recur, become more or less chronic, hard to manage, and we should always leave in the mother's and father's mind some doubt of the child getting completely well.

Dr. Marks has given the treatments very fully and I agree with him completely. This might possibly be divided into three or four different headings. First of all under general, we should force fluids where possible, and here again, as one of the men suggested in the last paper, the use of the Murphy drip or the nasal tube comes in wonderfully handy. It is surprising how much fluid we can get into a child in this manner. In other words, the so-called washing out of the kidney by way of the nose. We take a number ten catheter which can be inserted with very little trouble and kept in position by adhesive plaster. With that we can get in, I won't say how much, but from 200 to 300 or 400 cc.'s or even more. In fact, one doctor told me he got in 2000 cc. in twenty-four hours. In this way the child was cured by the enormous amount of fluid taken by way of the nose.

The drug treatment has been most successful, alkalis, as potassium citrate, sodium bicarbonate, etc., have given me good results.

Urotropin acts well in somes cases. It acts only in an acid media; we can use hydro-chloric and dilute in order to keep the urine acid and get the full effect of the urotropin.

Hexylresorcinol, in my hands, has been disappointing. I have given it in olive oil on several occasions, most infants vomit such a mixture. We had to stop that entirely. Sometimes the use of vaccine has helped in those chronic cases, the autogenous vaccines are best. Two or three cases recovered completely and some of them went from bad to worse, and I reverted to the alkaline treatments and they recovered so far as I know. The chronic cases are difficult to handle.

The older children are referred to the urologist for kidney washing.

P. F. Barbour, Louisville: I found it quite helpful in many of these cases to alternate the acid and alkaline treatment giving the acid treatment for two weeks and following it up with an alkaline treatment for two weeks. The change in the type of the fluid from the kidneys has quite an important effect on the bacteria in the pelvis of the kidney.

One feature of pyelitis I should like to emphasize is to ascertain the cause of the pyelitis. Nearly all cases of pyelitis are secondary to infection of the upper air passage. In nearly every case of pyelitis I have found there was a focus of infection either in the tonsil, adenoids or sinuses, upper respiratory on the one hand, or, on the other hand, an infection in the genito-urinary tract. If the colon bacillus predominates in the urine the infection must primarily be an intestinal infection. If the streptococcus, as in some cases, is the predominating type of infection of the pelvis of the kidney, the infection must be an upper air passage infection.

If you treat the pelvis of the kidney without taking into account the place where your infection is coming from, you are not going to get anywhere, and I think it is important, if possible, to find the focus from which the infection is coming, remove that, and the secondary pyelitis will clear up of itself.

J. W. Bruce, Louisville: This has certainly been a most interesting and practical paper of Dr. Marks.'

First, with regard to the collection of the specimen of urine, if the following points are carried out I believe you will find your examination will be very much more helpful.

In the first place, this condition is limited to female children and this is particularly important. In the second place, the receptacle to catch the urine, which can be bought, is a very good one but is not available to everybody. If you will take the seed holder that you will find in almost any canary bird cage, you will find that a very excellent receptacle which can be applied to the vulva of the female child, or the male, either one, and can catch urine very easily.

In examining this urine under the microscope you should not centrifuge it. If you centrifuge it it throws the appearance off entirely. The second point is that no cover slip should be used, because if you do the leukocytes slide out to the side and you have no idea how many there are. As Dr. Marks says, with the specimen examined under those conditions, where you find as many as ten cells to the higher powered field, we can pretty safely make a diagnosis of pyelitis.

I want to emphasize the point made by all the previous speakers about the examination of several specimens. That is very important.

After we have carried out medical treatment on these cases for three or four weeks without success, or even for less time than that, it seems to me these children should be examined by a urologist because those cases are very frequently due to congenital deformity such as stricture of the ureter, dilatation of the ureter, or something which has to be treated surgically, or possibly there is a stone there.

I have had a great deal better success with the alkaline treatment than either the acid treatment or the caprokol treatment, and here again I should like to reiterate the value of the nasal drip. It is the only way I know of that you can get sufficient fluid into these children, 2000 or 3000 cc.'s of fluid in twenty-four hours and sixty grains of alkaline, sodium citrate is probably the best, or mixture of sodium citrate and potassium acetate. The sodium bicarbonate is a little apt to produce diarrhea.

T. M. Marks, Lexington (in closing): I appreciate very much the discussion of my paper, and I have very little to say except that I recently visited Dr. Kretschmer at Chicago and asked him what, in his opinion, was the real cause of this disease and his answer was very good, I thought. He said that any disease which caused pelvic retention might cause pyelitis. It could be secondary to any disease that caused a concentration of the urine in the pelvis of the kidney, and he brought to my mind the fact that even though the colon bacilli might be recovered as a causative organism, the frequency in younger children of a red, swollen pharynx and inflamed tonsils in recurring cases indicated the removal of the tonsils.

About referring children to the urologist where they do not respond to medical treatment, there is a general idea that you cannot do a uretral catheterization on a very young infant, but I saw a pyelogram on a seventeen-day old, two week premature male infant while I was in Chicago. He told me if I should return in three weeks he would let me see him take out the right kidney of this same patient.

The reason so many cases of pyelitis are overlooked is, as Dr. Barbour, Dr. Bruce and Dr. Pritchett and Dr. Boggess said, the failure of making repeated examinations. You see the acuteness of the disease and the specimen is negative, and unfortunately for the after cure of the child the ordinary cleansing and the ordinary treatment for an acute gastro-intestinal upset will clear up the symptoms of a great number of these children and the urine is not examined the second time or the third time when the pus has begun to drain out and the kidney retention has been relieved and the mucous plug, or whatever is retaining the pus, has passed out and you entirely miss the diagnosis.

Dr. Harris has asked how to obtain the urine from the very small male child. It isn't such a difficult matter. Just attach a sterile test tube and fill in around the top of the test tube with some sterile cotton and just hold the child in a semi-recumbent position, put his feet and legs in a warm tub of water and after one or two attempts at certain stated intervals you will get the specimen. I have never seen it fail in the hands of a good nurse.

Treatment of Hemophilia.—A study was made by Christie and Gulland of the therapy of hemophilia. The only means by which the coagulability of hemophilic blood can be increased to any appreciable extent, and the symptoms definitely controlled, is by blood transfusion, whether of whole blood, citrated blood, or defibrinated blood. Of these the authors believe the citration method to be the best. This improvement lasts from five to seven days; it is the degree and not the duration of improvement which depends on the amount of blood given.

TUBERCULOUS MENINGITIS.*

By T. Cook Smith, M. D., Louisville.

A discussion of tuberculous meningitis is always timely and of value. There are certain facts concerning this disease which we would like to particularly emphasize. It is very important that physicians, that patients suffering from tuberculosis, and that the laity, be kept conscious of the fact that tuberculosis in infancy is not a rare disease. There seems to be a false impression in this regard, which is very hard to eradicate, and which works to the detriment of public health measures. It is not unusual to see tuberculous cavitation in young infants; to see tuberculous disease of bones, joints, glands, and of the nervous system. Any one working in a large clinic sees these pathological conditions constantly before his eyes. An infant under actual exposure to a tubereulous adult has proven to be extremely susceptible and can be fully expected to contract the disease. Figures compiled by Holt dealing with five thousand autopsies on children all under the age of three years, and dying from various causes, show a percentage of about 14% tuberculous infection. Autopsies done in Munich and Vienna on a series of thirteen hundred children of all ages up to fourteen years, showed a tuberculosis incidence of 40%. These figures cannot be taken lightly, but are based upon actual postmortem data, and are not accurate for incidence among apparently well children. Of course the incidence of tuberculosis varies in different countries and in different cities; as for instance Veeder in St. Louis found, by tuberculin testing, only 38% positive tuberculosis in a series of St. Louis children between the ages of twelve and fourteen years, whereas Pirquet in Vienna found 70% for the same age group. It is very certain that young children in actual contact with tuberculosis show a extreme susceptibility to the disease. This means that in the examination of infants who are actually ill, who are losing weight from some obscure cause, and who are developing local glandular enlargement, we have failed utterly if we do not rule out tuberculosis as one of the chief causes of such conditions. I mention tuberculosis in general, because tuberculous meningitis is practically never a primary disease. In infancy, it is nearly always associated with general miliary tuberculosis. Autopsies always show some focus of caseous tuberculosis, which has broken down allowing the tubercle bacilli to spread throughout the body generally.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

The age incidence of deaths from tuberculosis in children is very interesting and startling and is most marked under the age of three years. Tuberculous meningitis is the commonest type of meningitis that we have. Further more, tuberculous meningitis is the cause of death in most children dying of tuberculosis in infancy. Holt estimates that 40% of tuberculous deaths in infants takes place from tuberculous meningitis. The seasonal incidence is interesting and instructive. The disease occurs in any month of the year, but is most common in the spring. This seems to be due to the fact that the respiratory diseases of winter weaken the children so that tuberculosis which was latent may become wide-spread. The age groups of these children, dying of tuberculous meningitis, show the following figures in a series of 410 cases collected by Holt:

Under one year	162
One to two years	149
Two to five years	76
Five to nine years	17
Nine to sixteen years	6
Total	410

As is readily seen, these figures show that the commonest age for tuberculous meningitis is under two years. These are all children in infancy who have been subjected to very little chance of infection except from those handling and fondling the child and from food which might be held at fault. Park and Krumwiede, in a series of thirty-two cases of tuberculous meningitis, proved very definitely that the bacillus was of human type in thirty; that it was mixed in one; and that it was bovine in one. Statistics from Scotland, where the milk supply is not as good as ours, show a larger percentage of bovine infections. With us, with an improved milk supply from tuberculin tested cattle, with an almost universal usage of boiled milk, the points for dissemination of tubercle bacilli to young infants, are nearly always human carriers of the disease. It is nearly always possible, after careful search, to find the offending member of the tuberculous infant's family, or to find the sick friend who cares for the baby and who has passed on the deadly bacillus. Every child dying of tuberculous meningitis indicates a nearby carrier of tubercle bacilli and indicates a command that the physician make a careful scrutiny of every individual associated with such a child. In this regard, I would like to mention a patient whom I saw dying of tuberculous meningitis, the child being three years of age, having a younger brother and two older sisters. These other children in the family were negative to tuberculin, and the parents showed no sign of tuberculosis. Upon careful inquiry, however, we found that he had been sent to live with an aunt, and that this aunt was suffering from advanced pulmonary tuberculosis.

In typical cases of tuberculous meningitis, the symptoms are somewhat as follows: A two year old child begins with what seems to be an upset stomach. He is peevish; he vomits frequently without good cause; there is a change of disposition, sometimes with paralysis of the eye muscles producing a squint. There is gradual development of drowsiness. The mother tells you that the child seems to stare away into space without seeing anybody most of the time. There is a strange look about the eyes. The child loves to crawl into its mother's lap or to crawl on the bed and lie there most of the day. Sometimes there are convulsions. A physician examining a child at this time carefully would notice that the neck is stiff upon attempts at flexion. He might find a positive Kernig sign. He would find that when stroking the skin with a sharp pointed instrument, there would remain for a long time a red streak where the instrument had pressed into the skin. In a young child, the fontanel would be very tense and bulging. He would find if he took the precaution of watching the child for a while before beginning his examination, that the breathing was of a very peculiar type, a series of short respirations followed by deep respirations and ending in a long pause, the pause very frequently terminated by a deep sigh. There might be some fever or none at all. The pulse at this time is usually fast and becomes slow later on. If the child was not seen until the disease had been in progress for a long time, he would find a child looking very much like a case of diarrhoea with extreme intoxication. He would find the abdomen sunken, the skin dry, the eyes staring into space with unblinking eyelids, and here again he would find the irregular breathing. A stiff neck and a bulging fontanel in the presence of dehydration elsewhere in the body would give the diagnosis away. Examination of the eye grounds by ophthalmoscope sometimes rewards the examiner by the finding of choroidal tubercles. I have had the good fortune to see these in six patients suffering from this disease. They are very definite when present, and make an absolute diagnosis. We see the disease very frequently confused with infantile paralysis, with syphilitic meningitis, with lead poisoning, with pyelitis accompanied by stupor, with convulsons from any cause, and particularly do we find it confounded with severe gastro-intestinal intoxications. Diabetic coma is occasionally confused with this disease. In the presence of a child showing such signs as these, there are very definite steps which should be taken to make the diagnosis clear. In the first place, every sick child should be tested to see if his neck is stiff, to see if the fontanel is bulging, and to see if his Kernig test is positive. The habit of doing these things relieves one of a great deal of worry on returning to bed after examining a sick child. The spinal fluid should be examined and will be found in tuberculous meningitis to be under pressure, to be clear and not cloudy, and will be found to contain on microscopic examination an increased number of cells, usually round cells, sometimes, however, accompanied by a large percentage of polynuclear cells. The globulin test is positive. These facts separate this disease from pyogenic meningitis but do not separate it from poliomyelitis, which has a similar spinal fluid. These facts do not rule out a spinal fluid of cerebro-spinal syphilis. The spinal fluid of tuberculous meningitis, if allowed to remain over night in a test tube, shows the formation of a thin skein-like cob-web which is called a pellicle. This pellicle is unusual in other conditions, and this pellicle is carefully examined and stained will show fairly frequently if the examiner is persistent, acid-fast bacilli. A tuberculin test should be done on all such cases, and if positive is almost conclusive evidence in patients under the age of three years. If negative, it does not rule out miliary tuberculosis. X-ray of the chest often discloses miliary tuberculosis, making the diagnosis final.

The treatment of the disease is necessarily only palliative. Frequent lumbar punctures and feeding by nasal tube are helpful. The lumbar punctures reduce headache and relieve intracranial pressure and probably prolong life. The general treatment of the disease must be prophylactic. It is our duty to prevent such infections. On seeing an infant in a family die of tuberculous meningitis, it is our duty to find the offending member, the carrier of the tubercle bacillus, and prevent the recurrence of such a tragedy. It was my unfortunate opportunity to see the third and last child in a family die of tuberculous meningitis, both of the other children having died with the same disease. A mother suffering from tuberculosis should not nurse her baby, but more important, she should not handle it intimately at all during its early life. A particular offender is the sick friend of the family, who being already confined to the house is so willing to take care of babies for parents, who want to go out socially or to do various types of work. I can recall a number of instances of this kind where "the lady downstairs" with tuberculosis furnished a focus for the dissemination of tuberculosis to infants.

In conclusion, I would like to reemphasize certain aspects of tuberculous meningitis: (1) Tuberculous meningitis is not a primary disease and is usually contracted from a human source, the child developing a tuberculous focus, which later may spread causing miliary tuberculosis, with tuberculous meningitis as only a part of the pathological picture. (2) That tuberculous meningitis is the commonest form of meningitis in infancy. (3) That tuberculous meningitis is an indicator pointing out very definite duties to the physician; in other words it is a blazing beacon, indicating nearby danger in the form of a human carrier of tuberculosis.

DISCUSSION.

Morris Flexner: In Dr. Smith's very excellent presentation of this interesting disease he has attacked it in its only vulnerable place, namely, prophylaxis. The diagnosis is interesting and the treatment is useless except for palliative measures. A few cases of recovery have been reported but these have always seemed doubtful to me. When a case of tuberculous meningitis occurs in a child there has been a break in technique. It is almost as much a disgrace to a family as a case of typhoid fever is to a community. A child acquires tuberculosis only from an open case and to have an unrecognized open case in a community is a reflection on the intelligence of the individual or the physician in charge.

Occasionally a case is acquired accidentally. I saw in Baltimore a child of a professor in the University with tuberculous meningitis. He had taken a furnished apartment which to all intents and purposes looked clean but after the child died of tuberculous meningitis he found out that the former occupant of the apartment had been an open case of tuberculosis and the child in playing around on the floor had undoubtedly become infected.

Clinically to me one of the most interesting points about the disease is that in my experience it has usually appeared in fat healthy looking children. I have seen cases in emaciated children but in those under a year they have usually been robust. That must mean a miliary tuberculosis following an early caseation of a gland that ruptured into a vessel, as Dr. Smith has said.

A hint as to the diagnosis. Dr. Smith has mentioned the pellicle and the film formation which occurs in the tube standing over night. I think it is a good plan to have a number of sterile small tubes and to put one or two c.c. of spinal fluid in each tube, getting five or six films. The trick is to get the pellicle on to the slide. By agitating the tube gently the pellicle can be made to either float on the top of the spinal fluid or in it and then the whole contents of the tube is gently poured over the slide. The excess fluid is allowed to run into a Petri dish. As soon as the film touches the slide it sticks, at which time the slide may be raised to an almost vertical position and the fluid drained off. It should be alowed to dry in the air or in an incubator. It is then filxed with heat and stained for tubercle bacilli. I have never had success getting films on to slides with a platinum loop. Tubercle bacilli should be found in almost 100 per cent of the spinal fluids in cases of tuberculous meningitis. They are there and it only takes a long careful search to find them.

One point about the type of fluid usually found. We ordinarily think of it as having a clear or ground glass appearance. The first case of tuberculous meningitis I had as an interne showed markedly purulent fluid, yellowish in color. We obtained no growth on cultivation. No tubercle bacilli were found before the autopsy but the child was found to have a basilar meningitis and the smears from this showed tubercle bacilli.

P. F. Barbour, Louisville: I want to say this is one of the best papers I have ever heard in the Medical Society. It was intensely interesting and I enjoyed every word of it.

There are one or two things I should like to emphasize. The discussion brought out the case of a child's taking tuberculosis in a room that had been infected by the previous tuberculosis case. I had this experience several times in my life, so I do believe there is a possibility of house infection, and I think we ought to inquire very carefully when moving into a place as to the possibility of tuberculous infection.

I know in Vienna where the houses are 200 or 300 years old and there is very little light, tuberculosis is very much more common in the children in that city than in our country. There they get the house infections which may persist from generation to generation.

It is right difficult, I find to get the history from people as to contacts with tuberculosis. I see more tuberculous meningitis than almost anything else. The doctor throws up his hands and the people call for help which can't be given. I interrogate the family to see if there is any tuberculosis, and very often we can find out nothing from the family. I think Dr. Smith emphasized the fact that the person giving the tuberculosis should be sought out in the family. They are a menace to the child in that household, and not only in that household but to children in other households.

I think the earliest sign of tuberculous meningitis is the change in disposition which takes place four to six weeks before the actual onset, which is nearly always with vomiting. A child on the breast will vomit when taking breast milk, and sometimes they vomit after long intervals of rest from the breast. If the child is apparently a healthy looking child and vomits without any reason at all, you should certainly suspect tuberculosis.

I have rarely been able to make out tubercuosis of the lung in any child with tuberculous meningitis. So far as the physical signs are concerned, I have found no sign of tuberculosis in the lung, but the x-ray helps us, except in one case where I found a wide mediastinal space in the tuberculous meningitis and I think you have had the same circumstances I have had. They are invariably mild and wide and that clinches the diagnosis usually. But in all cases I have been able to make out a wide medisatinal space oftentimes confirmed by the x-ray. Practically all post-mortems show a tracheobronchial involvement. Mapping out a wide mediastinal space can easily be done by resistance percussion. This is especially valuable because the Von Pirquet and Manteau reactions are invariably negative in tuberculous meningitis.

THE SIGNIFICANCE OF BASAL METABOLISM IN DISEASE.*

By W. S. Wyatt, Lexington Clinic, Lexington.

Basal Metabolism in disease of the thyroid being more familiar to clinicians than it is in other diseases, it seems expedient to discuss first the basal metabolic rate in goiters.

Colloid goiter is usually a diffuse, symmetrical, soft enlargement, starting at the age of puberty. Lack of iodine in the water and food has been shown by Marine to be the cause of the disease. Small doses of iodine given to girls at puberty and to women during pregnancy will prevent it. The basal metabolism is always within or slightly below normal limits. Plummer gives the basal metabolism ranges from 8 to 18 per cent below the normal average. He has never seen one below the 18 per cent level . In a large series of myxedema patients and others reported by Plummer with metabolism more than 20 per cent below the average, none had a history of a diffuse colloid goiter.

Adenomata of the thyroid are usually multiple, giving a nodular feel to the mass and are oftener found in glands which have been previously enlarged. They are benign and when removed at operation do not tend to recur. The basal metabolism in these cases falls within normal limits.

Toxic adenomata or adenomata with hyperthyroidism are a group to which Plummer called attenion. The thyroid in these patients has previously shown enlargement and at the constitutional symptoms begin about the age of thirty-five or forty years and develop gradually. Exophthalmos seldom occurs in this group. The basal metabolism reaches an average of about 30 per cent above normal. The cause of the increased activity of a majority of these cases is unknown but in some the administration of iodine seems to have initiated the hyperthyroidism.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

Exophthalmic goiter or Grave's or Basedow's or Parry's disease, also sometimes called hyperthyroidism, from the basal metabolic standpoint is the most important of the thyroid diseases.

Boothby defines exophthalmic goiter as, "A constitutional disease apparently due to an excessive, probably an abnormal, secretion of an enlarged thyroid gland showing pathologically diffuse, parenchymatous hypertrophy and hyperplasia. It is characterized by an increased basal metabolic rate with the resulting secondary manifestations, with a peculiar nervous syndrome and, usually exophthalmos, with a tendency to gastro-intestinal crises of vomiting and diarrhoea. The cause of the altered pathology and activity of the thyroid gland is not known." Remissions occur and spontaneous recovery may take place. The administration of iodine in the form of Lugol's solution or potassium iodide usually causes a temporary remission.

The milder forms of the disease are often taken for pulmonary tuberculosis, neurasthenia, and neurocirculatory asthenia. The basal metabolism is increased roughly in proportion to the degree of hyperthyroidism and this is used as an aid in diagnosis. Following sub-total thyroidectomy, which is still the standard method of treatment, there is a marked fall in the metabolic rate and improvement in the symptoms. The exophthalmos and grave cardiac damage in many cases can not be relieved by treatment.

Myxedema or Gull's disease results when the thyroid gland of an adult is diminished in amount either by atrophy or operation to such an extent that the secretion is seriously decreased. Women are more frequently affected than men, in a ratio of 6 to 1 The basal metabolism is diminished. Extreme cases may show a basal metabolism of 40 per cent below normal and Bowman and Grabfield have reported one with a metabolic rate of 56 per cent below the average normal. The severe cases are rare but the milder forms are seen rather frequently. Both forms, however, usually improve promptly with thyroxin or desiccated thyroid gland treatment. The basal metabolism should be maintained at about the normal level and frequent metabolic determinations should be made in order to control the dosage.

Cretinism is a disease which originates during fetal life or infancy as a result of more or less complete lack of thyroid secretion. Two forms are recognized—the sporadic and endemic. In the sporadic form the gland may be congenitally absent, or is atrophied after one of the specific fevers, or the condition develops with goiter. The endemic form occurs wherever goiter is prevalent. A lack of iodine in the mother's organism is the probable cause of the failure in thyroid development. Retarded development of the mind and body occurs and if treatment is not begun, the child may lapse into imbecility.

The basal metabolism is low in all forms of cretinism, but the comparison with normal standards often presents great difficulties. Talbot has made an extraordinarily early diagnosis in an infant three months old. The earlier the treatment is begun the better will be the prognosis, for in cases of long standing, the results are very disappointing. Treatment with desiccated thyroid or thyroxin cause marked improvement of all symptoms with a return to a normal metabolic rate.

Thyroditis is a comparatively rare condition and is usually secondary to some infection and may be simple or purulent. It has been met with most frequently in typhoid fever, mumps, tonsillar or throat infections, tuberculosis, small-pox, pneumonia and rheumatic fever. There may be an acute febrile reaction or there may be no fever but a low grade inflammatory reaction of long duration with a hard, diffuse enlargement of the thyroid. A low grade thyroiditis may occur without attracting the attention of either the patient or physician which Plummer believes may be the underlying cause of thyroid atrophy, eventually leading to myxedema. Depending on the stage and character of the infection the basal metabolism may be increased, normal or decreased. In those patients with increased metabolic rate the clinical symptoms so closely resemble those of exophthalmic goiter, that only after the pathologic examination is made is the true condition recognized.

Malignant growths of the thyroid are not common. They usually develop between the ages of forty and sixty in glands which have previously been goiterous or adenomatous. The thyroid is very hard and quite firmly attached to the surrounding tissues. An increased basal metabolic rate is usually found although it may be normal or below normal. If malignancy is found at surgical exploration, radical excision is indicated. But unfortunately the condition is often recognized too late for complete surgical removal and it is in these cases that radium and roentgen-ray have been found of value in checking the progress of the disease and prolonging life. Beginning malignancy is not infrequently found in the small adenomata.

Thymic Basedow's disease is quite rare. There has been one case at the Lexington Clinic. The gland was very hard, smooth and firmly attached to the surrounding tissues. The clinical symptoms were those of exophthalmic goiter accompanied by attacks of suffocation. The metabolic rate was plus 26 per cent. The pre-operative diagnosis was carcinoma of the thyroid.

Adults showing undernutrition or inanition have a metabolic rate below normal, while infants and children suffering from the same condition a slightly increased rate is found. The increase of metabolism in children per unit of body mass Talbot ascribes to a loss of inactive fat and a relative increase in active protoplasm. Murlin believes the atrophic infant has a high metabolism because it loses heat more rapidly since there is a lack of subcutaneous fat to act as a conserver of body heat. Boothby and Sandiford emphasize the fact that the children are sick and are not to be compared with healthy adults on low diets. They ascribe the increased metabolism to the same factor which causes the illness.

Obesity, which is one of the commonest diseases, is divided into exogenous and endogenous forms. The former is due to over-indulgence in food or too much laziness, while the latter is due to some sort of endocrine disturbance. In exogenous obesity the basal metabolic rate is within normal limits in 81 per cent of cases, while the remainder will show rates between minus 15 per cent and plus 15 per cent. The basal metabolism in endogenous obesity is within normal limits except in those patients examined during or soon after the period of growth, when a distinct diminution in metabolism is found.

With the wasting and asthenia in Addison's disease a lowered metabolism should be expected, yet some of the cases reported show a decided increased metabolic rate, some normal and others a diminished rate.

Diseases of the pituitary, hypo- and hyperpituitarism, do not show great uniformity in metabolism, although Boothby thinks there is some evidence of an increased rate in the early stages of acromegaly.

The absence of diminished function of the testes or ovaries only rarely causes a diminshed metabolism.

In spite of all the work done on the influence of menstruation on metabolism the subject is still not settled.

During the early months of pregnancy the metabolism is lowered; then it increases gradually, rising out of proportion to the gain in weight, until a few days before delivery it is above normal. Following partuition the metabolism may remain stationary for a short while or it may show a rapid drop, slightly rising in the next few weeks.

The acute cases of secondary anemias show an increased metabolic rate, the milder cases are usually within normal limits, while the chronic ones tend to show a diminished rate. The majority of cases of pernicious anemia show an increased metabolic rate, while a smaller number show a decreased metabolism. De Bois says that it is difficult to be certain as to the factors in primary or secondary anemia which influence the basal metabolism.

In the leukemias the basal metabolism may be as high as in the severe types of Graves' disease. And Minot and Means have proved that leukemic and exophthalmic goiter patients with the same metabolic rate have about the same pulse rate.

Erythemia or polycythemia rubra vera, shows a rather uniform increased metabolism.

Fevers, according to Du Bois, give metabolic rates of the same degree, the average rise in heat production is about 7.2 per cent for each degree Fahrenheit. In pulmonary tuberculosis, however, there is a tendency for the metabolism to be relatively lower than with the corresponding degrees of temperature in other infections. This is thought to be due to the fact that pulmonary tuberculosis is often accompanied by high fever with comparatively slight toxemia and little or no toxic destruction of protein.

Conclusion: the basal metabolism test is an aid in differential diagnosis but, like other laboratory tests, due regard to its limitations, sources of error, and the correlation of the clinical findings must be observed before a proper evaluation may be obtained.

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THE EARLY RECOGNITION OF SURGICAL GOITRE.*

By Walter I. Hume, Louisville.

1. Importance of Early Diagnosis.

Many goitre problems remain unsolved and certain differences of opinion exist among earnest, experienced workers. Notable contributions to our knowledge of the subject have been made in recent times, however, which have led to better understanding all along the line of etiology, pathology, diagnosis and treatment. Endemic goitre may now be prevented. Exophthalmic goitre, as to cause and prevention remains a baffling question. That the surgical treatment of exophthalmic goitre and such of the endemic type as become surgical is effective, despite gaps in our knowledge, is attested by recent publication of large series of operative cases with a mortality closely approximating 1%. Compared to a mortality of 20%, even 30%, in the early days of the radical treatment of surgical goitre this represents a brilliant advance. The victory is not complete nor are we entirely satisfied with results. Many cases apply late for treatment and late cases add greatly to the difficulty of surgical treatment and the mortality, besides which we must often be content, in case of recovery, with a residual morbidity. "Goitre wrecks" may be saved but are wrecks none the less. This paper is a plea for early, exact diagnosis of surgical goitre, not alone to aid the surgeon in his difficulties in handling such cases and to better his final results but for other good and sufficient reasons. First, the course of hyperthyroidism, recognized or unrecognized, without operation, is one usually of long continued illness and economic loss. Then early diagnosis should eliminate misdirected treatments which may be merely meddlesome and result only in delay but which may be harmful. The conditions for which toxic goitre has been mistaken, and mistreated, make a long list. These conditions may be grouped in three main classes: gastro-intestinal, cardio-vascular and nervous disorders through the female generative organs are sometimes indicted. It is proper at this juncture to note that not all misdirected treatment of goitre is medical. Not infrequently operations are undertaken on bearers of unrecognized toxic thyroids. Any operation on the bearer of a toxic thyroid is fraught with danger, particularly if the toxic condition is unrecognized and particularly if the patient is not specially prepared and the operative procedure is not directed toward lessening the influence of the gland. The patient under such conditions is almost invariably made worse. So true is this that except possibly in early, mildly toxic cases, recent authority favors removal of infected teeth, tonsils and foci of infection in general after and not before thyroidectomy.

Another reason, unfortunately valid, for stressing the importance of early diagnosis and classification of goitre is that some confusion yet exists in the professional mind in regard to diagnosis and treatment. A united front on our part would, if such were possible, soon result in educating the laity out of some of its old concepts of goitre. We must realize that enlargement of the thyroid—goitre—alone is no diagnosis; that severe hyperthyroidism sometimes exists with no visible or palpable enlargement of the gland; that considerable enlargement may mean not hyper, but hypothyroidism (even cretins may show enlargement) and that diagnosis to be sufficiently complete and a guide to treatment must include classification and an estimation of functional activity—normal, or degree of hypo- or hyperfunction. Finally, knowledge and means are in possession of the profession to enable us to make, positively and as a rule rather easily, early diagnosis in toxic goitre. Diagnosis depends mainly on three things: 1. Intimate knowledge of the beginning and course of the disease. 2. Proper estimation of certain variable symptoms—none of which are constant and none pathognomic and, 3. Certain tests for hyperfunction.

Treatment of goitre is outside the scope of this paper. However, for the purpose of this paper it seems desirable to indicate briefly what is meant by surgical goitre. The simplest classification possibly divides goitre into (1) exophthalmic and endemic. Exophthalmic goitre is primarily surgical as is adenoma with hyperthyroidism. Adenoma without hyperthyroidism is considered surgical after the twenty-fifth year, only occasionally before because of pressure symptoms, because no recession is likely and because of cosmetic reasons, possibly malignancy later (1% to 2%) and because a considerable number develop hyperfunction. Colloid goitre is rarely a surgical condition. Endemic goitre includes (a) diffuse colloid and (b) adenoma without hyperthyroidism. The real problem in early diagnosis is that of the two toxic types and further discussion will be limited to these. Of the toxic types cases fully developed exhibiting the so-called "cardinal" signs and symptoms and in which the diagnosis is obvious will be left out of consideration.

The importance of the basal metabolism test should in no particular lessen our zeal for history taking, physical examination and clinical observation. Apparatus and one competent to make and interpret this test may not always be at hand; besides, only suspected cases are tested and our difficulty has been that many cases are not suspected early. This is true because the early symptoms of toxic goitre often mimic well those of other conditions or are thought to be only normal nervous or emotional reactions of persons under stress. Early in the course of hyperthyroidism there is no pain, not even discomfort, nothing as a rule to direct the patient's attention to the gland. In fact, an increased appetite and an excess of energy may suggest improved health of the patient.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

Every physical examination should include careful inspection, palpation and asculation of the thyroid gland. Careful inspection may reveal deviations of the trachea and larynx which mean unequalized pressure by an adenoma, usually. Any changes from normal neck contour may suggest thyroid enlargement. Deglutition may bring the whole gland into relief or lift a concealed adenomatous mass into view. Dimensions of the lobes should be approximated, the consistency taken into account and the presence or absence of nodules noted. Pressure by the examining fingers should be so applied as to bring nodules or lobes of the gland into prominence. Bruits originating in the superior thyroid vessels have some diagnostic significance in exophthalmic goitre. The bruit is long-drawn-out and the point of maximal intensity over the superior poles distinguishes it from the shorter, sharper carotid bruits with point of maximal intensity just above the clavicle.

Adenoma with hyperthyroidism: Adenomatous masses undoubtedly frequently coexist, hidden most often, in cases with colloid goitre from adolescence onward. A toxic adenoma in a patient under twenty years of age is a curiosity (H. S. Plummer); toxicity in adenomatous glands is comparatively rare before thirty and 78% of cases are over forty. The goitre is noted at the average age of twenty-two, symptoms are observed at the average age of thirty-nine and the patient applies to the surgeon at the average age of forty-one years. The mass or masses of new tissue vary in size from those so small as to be discovered only on careful pathological examination to those several inches in diameter. They are firm and not symmetrical. Pressure symptoms(mechanical interference) as dyspnoea, dysphagia and dysphonia may be noted or not as in the non-toxic type. Evidence as to why a pre-existing adenomatous goitre begins to hyperfunction and imitates a gradually ascending wave of intoxication, with slight or no remissions, cannot be adduced here. Plummer has apparently proven that hyperfunctioning adenomatous glands deliver merely an excess of the normal thyroid secretion and the condition resulting is that of "pure hyperthyroidism." This change begins without change in size, contour or consistency of the gland. Bruits and thrills are seldom noted in adenomatous goitre. In fact nothing, locally, is observed to indicate that any profound change is occurring. Pre-existing small adenomas may be centrally located or hidden behind the sternum, unobserved by the patient or physician, in which situation no warning is given as to the possibility, which always exists in the presence of adenoma, of toxic change. Toxicity is readily suspected in bearers of obvious, old adenomas.

Nervousness and palpitation are frequently first complaints. If such symptoms present in a case showing nodular goitre the problem is to determine if we have an old non-toxic goitre plus a neurosis or has hyperfunction begun. In case adenomas have remained undiscovered the problem is yet more difficult as neurosis must be differentiated from hyperthyroidism then toxic adenoma from exophthalmic goitre. The nervous phenomena are such as are found in many other conditions and differ somewhat from those of exophthalmic goitre. Visible nervousness is less marked as in tremor when present. Palpitation may lead to an erroneous assumption of essential cardiac or cardio-vascular disease. This is particularly true of hyperthyroidism in persons of advanced years and in whom vascular changes, cardiac diseases and hypertension are commonly encountered. Auricular fibrillation particularly in the female and without some other readily discoverable etiologic factor present should make one suspicious of possible thyroid toxicity. Essential heart disease and toxic goitre may co-exist but many cardiac conditions have been entirely relieved by thyroidectomy. Cardio-vascular symptoms regularly exhibited by hyperthyroid cases, and later, actual cardio-vascular damage serve frequently to focus attention on the heart instead of the thyroid and differentiation is very difficult and often requires repeated basal metabolism tests and special examinations of the heart. Pulse rate, varied as it is by so many mental and physical reactions, may be only suggestive. The rate in hyperthyroidism is usually high—100 or over—but may rarely be within normal limits. But a maintained high pulse rate in one apparently in good health is rather significant. The chief complaint may be of failing strength and loss of weight. In fact, progressive weight loss with increased appetite in an afebrile case, as is the rule in hyperthyroidism, strongly suggests the disease. This combination will seldom be observed in other conditions. Tuberculosis, cancer and certain other chronic wasting diseases may be eliminated, often, by this rule. Insomnia is a frequent early complaint as is, also, inability to withstand heat. The latter with increased tolerance for cold is regularly to be found in hyperthyroidism and is of special significance in the old.

Blood pressure readings, now everywhere routinely done, may afford us a mild suggestion of thyrotoxicosis. The systolic is elevated and the diastolic is somewhat lowered giving rise to a high pulse pressure. Increased pulse pressure is probably the most significant of the readings. Such readings associated with rapid pulse should lead one to include hyperthyroidism as a possible cause.

The administration of iodine for any considerable period of time to subjects with adenomatous goitre suspected of hyperfunction is unsafe because of the possibility of its activating resting adenomas and as a test is apt to be inconclusive.

Always, once a definite suggestion of thyroid intoxication is received, basal metabolic readings should be had and repeated as necessary to confirm the diagnosis and to determine the degree of intoxication.

Exophthalmic Goitre: Exophthalmic goitre may occur at any age but is most frequent in the third and fourth decades. The intoxication is not "pure hyperthyroidism" as all the symptoms are not explained by an excess of the normal product of the gland (Plummer). It is reasonably conceived to be caused by an excess of the normal secretion, as in toxic adenoma, plus an abnormal product. In other words a dysthyroidism. The gland is fairly firm and fairly symmetrical. Over 60% of the cases are under forty years of age, a period in life when certain neuroses, neurasthenia, neuro-circulatory asthemia and autonomic imbalance are prevalent and which frequently makes early diagnosis difficult. The goitre and the symptoms appear at the average age of thirty-two years and they apply to the surgeon for treatment at the average age of thirty-three. The course of the disease is rapid and relatively acute.

What has been said of the early diagnosis of adenomatous goitre with hyperthyroidism with a few obvious exceptions may apply in exophthalmic goitre but in addition certain ocular findings and nervous phenomena not commonly observed in toxic adenoma, should be mentioned.

As previously noted there may be occasionally no visible or palpable enlargement of the gland in exophthalmic goitre; neither may there be exophthalmus, at least not early in the course of the disease. Either may be present without the other. Earlier than exophthalmus, when present, may frequently be observed a peculiar stare which is quite characteristic of the presence of the disease. Exophthalmus is, of course, one of the "cardinal" signs. Other occular signs are of minor importance.

The intensity of the nervous symptoms in the exophthalmic type is greatly increased. Irritability, restlessness, moods, periods of striking mental alertness and emotional outbreaks followed frequently by depression are common and early symptoms. Marked tremor is the rule and complaint of "inward" nervousness is frequent. "Purposeful but useless motions" are characteristic.

Gastro-intestinal crises with persistent vomiting are usually later manifestations of the disease but, infrequently, as once occurred in my personal experience, persistent vomiting may be the outstanding feature of the condition on the physician's first call. The patient's behavior frequently readily suggests the diagnosis. The moist, hyperaemic skin, the peculiar stare and nervous irritability are not easily overlooked or misinterpreted.

In the writer's opinion the carefully checked response of a suspected exophthalmic case to proper iodine medication is a test as conclusive as any. Basal metabolic readings bear the same relation exactly to exophthalmic types as to toxic adenoma. The basal metabolic rate test is an invaluable aid in diagnosis in otherwise doubtful cases, in estimating the degree of intoxication and in checking up on the effect of treatment. It is firmly established and with a trained technician in charge equipped with standard apparatus readings are fairly uniform and dependable. Experience teaches us to be wary of small variations from normal readings and that safety lies in repetitions of the test. Any reading below plus twenty gives no definite indication of thyroid intoxication. Though the test is of great value, blind dependence should no more be placed in it than in the Wassermann in syphilis, the x-ray in fractures, etc.

SUMMARY.

Diagnosis of surgical goitre is sometimes made late. Early diagnosis is as important relatively, as early diagnosis in tuberculosis, malignancy and other conditions. Diagnosis can, as a rule, be made early. Dependence must be placed, mainly, on careful histories and physical examinations, on familiarity with the course of the disease and on the metabolic or in exophthalmic cases possibly on the therapeutic (iodine) test. Proper management necessitates differentiation of cases into types, i. e., colloid, simple adenoma, adenoma with hyperthyroidism, exophthalmic and mixed. Such classification (differentiation) may be difficult early but it is of such importance in treatment that careful study of each individual case with this end in view should be done. Thus, usually, surgical cases may be readily distinguished from such as are medical. Late typical cases have not been considered in this paper.

USE OF IODINE IN GOITER.*

By R. R. Elmore, M. D., Louisville.

Function of Thyroid Gland.

Observations in clinical medicine has given a clearer picture of the purpose of the thyroid than experimental physiology. From an atrophy of the thyroid gland with the typical myxoedemea, with blunting of mental activities, delayed cerebration, thickened connective tissue changes, slow pulse and lowered temperature, excentric and retardation of osseous, muscular and nervous systems to a hyperthophy of the same gland with tachycardia, tremor, loss of weight and strength, instability of nervous system and increased metabolism covers the broad range of thyroid activity.

Starling relates that a moderate degree of thyroid inadequacy is probably not infrequent, and the beneficial effects on general health when administered to people of middle life for correction of corpulency and promotion of the growth of hair, may be due to the replacement of a function which is being insufficiently discharged, and that the internal secretion of this gland in the blood stream is necessary for the normal growth and functions of all the tissues in the body, and while its exact character has not been established there is no question but that iodine is essential to the formation of this secretion and the specific hormone contains iodine in organic combination. Thyroxin with a probable chemical structure of $C_{11}H_{10}O_3NI_3$ has been isolated, with therapeutic power similar to the duct gland.

Iodine Content of Blood During Menstruation.

Maurer found a considerable increase in the iodine of the blood during menstruation, during the last three months of pregnancy and during labor. As soon as birth has taken place, it drops to a level far below the normal. This observation taken in connection with the physiologic changes in the thyroid in pregnancy and menstruation, strengthens the hypothesis of the thyrogenous origin of blood iodine.

Few subjects in medicine or surgery in recent years have received the extensive and intensive study throughout the leading nations which has been given to the relationship of iodine deficiency and goiter. A voluminous literature has sprung up, and in this article no effort is made to give a complete bibliography of original articles consulted.

Far back in the history of medicine the ashes of sea weed were prescribed for goiter—probably before the iodine content in the ashes was known.

Sporadic efforts have been made to charge thyroidism to some infecting agent, thus drinking water from a goiter well or the infection of a filter residue are reported to have produced goiter. However plausible some of these cases appear, the claims have never been substantiated. Leitch made an intensive study of the bacteriology of twenty-five cases of toxic goiter, and in not a single case was an organism isolated which could be traced to the thyroid.

The results of investigations at home and abroad prove through well recognized laws of logic a constant relationship between iodine deficiency and the prevalence of goiter. An estimate has been made of the amount of iodine in the air, water, soils, animal and plant life, and in the excreta of people in a goiterous region and in a non goiterous region. When the percentage of goiter was high the amount of iodine was low. And in localities rich in iodine the number of goiters are few. These facts were set forth by Chatin of Switzerland some four score years ago, but his conclusions were denied and his methods of investigation were questioned. The acid test of a treatment is found in the verdict arising from its administration. In certain regions a careful survey of school children have been made, the number of cases of goiter were determined, the iodine deficiency was then supplied and the number of goiter cases were found to have been almost eliminated. The historic Akron, Ohio case is an example—in which four thousand children were observed for two to four years. Something like one half of them took sufficient iodine to saturate the thyroid gland twice yearly—the other children not taking any iodine. No child free of goiter and taking iodine developed goiter, while the controls or contrasts not taking iodine developed goiter in 27.6%. Also those children having goiter and taking iodine over 6% returned to normal, while of the controls having goiter and not taking iodine very few presented a decrease in size of goiter. Again in St. Gall, Switzerland the prevalence of goiter is said to have been reduced from

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

87.6 to 13% in four year's time by supplying the iodine deficiency.

A recent survey of Louisville's Public Schols in which 52,000 children were said to have been examined, resulted in a finding of:

310 simple goiters with no treatment
11 simple goiters under treatment
2 toxic goiters with no treatment
2 toxic goiters under treatment
30 suspected cases of goiter with no treatment
4 suspected cases with treatment

Because of a lack of uniformity of training and observation the above findings may be open to criticism, but if we can keep up this survey on an annual or bi-annual basis, in a few years we should be in possession of fairly accurate information. I have been informed by some of those making the survey this year that the percentage of goiter was smaller than a few years ago when a partial survey was made. This decrease was said to have been produced by the more liberal use of iodine salt, as advocated by the Kentucky State Board of Health.

If iodine deficiency is the predominant factor in producing goiter, is there any reason to anticipate an increase in the prevalence of goiter? Since no reliable data can be secured as to the number of goiter cases ten years ago or even today, other methods must be followed to ascertain the trend.

Commercially speaking, the surgical treatment of goiter represents new business developed largely in the last 10 or 15 years. Personal opinions of all surgeons approached and hospital records consulted show a constantly increasing number of thyroidectomies.

The Percy Clinic at the Augustana Hospital in Chicago is probably the most representative general surgical clinic under one man to be found in the States, here they do fifty or more thyroidectomies monthly, while Dr. A. J. Ochsner who established this clinic probably did not do as many sub-total resections annually as is now done monthly. I merely remind you of these items to suggest that pathology of the thyroid gland is assuming a major importance, and that unless some prophylaxis is applied we may expect an increasing number of abnormal thyroids. A casual survey of the iodine content in soil reveals the greatest scarcity in the great lakes region and the northeast of glacial origin, and a constant increase in iodine content as you follow southward along the Mississippi Valley, showing an iodine drift to sections already rich in iodine.

Assuming the iodine to be of oceanic origin, and that no provision is made for the constant depletion of water and plant life, the iodine content of soil, plant and animal life must diminish. Also the present excessive refinement of food discards the protective coverings of food which contain the largest percentage of iodine. As no iodine content is placed in fertilizers the only iodine returned to the soil is the fertilizing material produced on the farm. Since the soil iodine is accurately reflected in the food iodine—iodine fertilization is a subject of growing importance. Early attempts to establish iodine fertilization of soil were not promising but recent trials by German agricultural colleges have shown an increase up to twenty fold the original iodine content in most important food plants, as grains, clover species, fodder, grasses, sugar beets and fodder beets. It is not so highly improbable that basic foods some time in the future may be required to contain a minimum percentage of iodine.

Recently studies have been made as to the amount of iodine necessary to make a region goiterous or non goiterous. It is a matter of only a few hundredths of a milligram.

It is estimated a normal body requires one milligram of iodine daily for the use of the thyroid. It has been suggested that a normal body may have the power to reclaim the iodine which has passed through the thyroid tissue, the absence of or the efficiency of this particular power may determine the amount of iodine needed. When the iodine content of the thyroid gland is one-tenth of one per cent or more no tendency toward hyperplasia is found, but when the iodine content falls below the above amount active hyperplasia begins.

To determine the influence of milk rich in iodine upon young growing tissue, lactating rats were fed partly on maize grown on soil rich in iodine and on milk from cows receiving four milligrams of iodine daily. The young suckled by these weighed twenty per cent more than the controls.

The tocsin has been sounded to emphasize the dangers of indiscriminate use of iodine in goiter. Every physician should have a general working idea of the use of iodine in goiter. Kimball made a study of 2,659 cases of hyperthyroidism treated from March 1, 1921 to September, 1923, of which 309 apparently had been produced or made worse by the use of iodine. But of 210 cases the goiters were of long standing, an average of eighteen years and in each case the gland was adenomatous.

A study of goiter literature reveals that some writers contend that true exophthalmic is an uncommon disease, defining this condition as characterized by exophthalmas, goiter, tremor, tachycardia and an elevation of the basal metabolic rate. Of these symptoms the tachycardia and elevated basal metabolic rate are the most constant and are necessary to the diagnosis. These two symptoms with loss of weight occur early, and may exist for some time before the onset of the other symptoms. My observation convinces me that the above condition is not so uncommon and is becoming more frequent every year. The relationship of toxic goiter or hyperthyroidism to simple or endemic goiter is an interesting subject, many excellent observers relate there is no relationship between them but the preponderance of evidenec is against them, as shown by defects found in drafted men, and other material evidence.

A note worthy contribution to the pathogenesis of exophthalmic goiter has recently been made by Bram, who reviewed 3343 cases of this type, of which 2842 or 85% are said to have presented a clear history of psychic trauma as the exciting factor of this disease. In 167 cases of this series there was a history of focal or general infection as the probable exciting cause. In 133 cases the ingestion of iodine or thyroid extracts in tablets or in the form of obesity cures was regarded by the patients as the cause of the symptoms. In 201 cases there was no discoverable exciting cause to account for the onset of the disease.

This is an interesting resume but not convincing effort as to the cause of this type of goiter. It is a self-evident fact that in history taking the onset of an insidious disease is dated by the patient to some physical or emotional shock but careful inquiry will establish an error in the patient's impression of sequences of symptoms.

The applied use of iodine in goiter falls into three headings:

(A) Use of iodine as a prevention of goiter by adding iodine to the water supply, or to the table salt, or the administration of definite amounts of iodine at certain periods. The latter method is the most practical and largely favored. The prescribing of a small amount of iodine during pregnancy and lactation should be encouraged. Also the custom of giving a small amount of iodine weekly throughout the year or daily for ten doses twice yearly to children from eight to fourteen years of age.

(B) The use of iodine in simple goiter as a curative measure and a standard treatment. Care should be exercised to eliminate colloid and adenomatous goiter, in which iodine should be used with great caution if at all.

(C) The use of iodine in hyperthyroidism and exophthalmic goiter is a comparatively new field, which has been used as a battle ground by many writers. The prevailing opinion at present recommends the use of compound solution of iodine as a preparatory treatment for thyroidectomy, having taken the place of pole ligation. Vigorous administration of this preparation may produce such magical results that surgeons secure a clearer conception of the patient to see them before iodization has occurred. In some hospitals rest in bed and administration of Lugol's solution, with observation of weight, basal metabolic rate and tachycardia are used as a prognosis for thyroidectomy. Unless the above symptoms improve, the patient is regarded as too highly toxic for a good result to follow thyroidectomy.

It has been observed that occasionally iodine aggravates toxic goiter, this aggravation of symptoms most frequently occurring in toxic adenomata . The amelioration of symptoms in toxic goiter following vigorous administration of Lugol's solution is unfortunately temporary, and the toxic symptoms recur, the period of maximun benefit running a few weeks.

DISCUSSION.

V. E. Simpson, Louisville: The classification of diseases of the thyroid has been and is yet rather perplexing, I take it, to the great majority of the profession.

Basal metabolism will aid one in dividing his thyroid cases into two great groups, those in which the thyroid is overfunctioning and those in which it is underfunctioning, or, to use more technical terms, hyperthyroidism and hypothyroidism; and so far as the average doctor's work is concerned, that is probably as far as he needs to go.

Basal metabolism, as has been indicated, if properly done is of considerable value in making that differentiation of these groups. Like all sorts of clinical procedures and laboratory procedures as well, if it is inaccurately done, if the conclusions as based on the effort made are erroneous because of failure in doing the work as it shoud be done, it does not discredit the procedure itself but the work.

In the group of hyperthyroid cases there stands, so far as frequency is concerned, two chiefly. There is another one, but usually it is an adenoma that has become overactive or that individual condition which we set aside as one that is distinctive, exophthalmic goiter, that show increased basal rates. The one shows increased basal rates because of a pure increase in the secretion of the thyroid gland. That is a toxic adenoma. The other shows an increased basal rate because of a perverted secretion, a disturbance of secretion of some nature the exact character of which we are not yet informed, that is, exophthalmic goiter; but in either case there is an increased rate so long as the activity itself is going on. As long as an adenoma shows no activity in an individual with a normal basal rate that adenoma except in the cases where it is sufficiently large that mechanically it is doing harm, or where potentially it may become a malignant condition, may remain with perfect safety in the patient and the great majority of adenomas go through life in just that way.

Some of them undergo degenerative changes and disappear, but the pure adenoma if it does cause harm usually does so because of an increased activity of the thyroid gland that is possessing it, and here we have an increased basal rate. In our own experience our basal rates have been higher taking them as a group in the toxic adenomas than they have been in the exophthalmic goiters.

In our own experience in the exophthalmic group the damage that has been done to the circulatory and nervous systems have outclassed the toxic adenomatous group despite the fact that a larger percent of the toxic adenomas showed a higher basal rate.

Basal metabolism is just as important in determining the result of treatment as it is in determining whether treatment shall be instituted. If a patient under observation has symptoms such as tachycardia, loss of weight, loss of strength, gastrointestinal disturbances, or what not, it should cause one to suspect hyperthyroidism with or without an enlargement of the thyroid gland even though the patient may emphasize a wholly different causative condition.

There are many things that will cause all of the symptoms of pure hyperthyroidism and basal metabolism, as indicated by the essayist, will enable one to drag the line of differentiation between the cases presenting those symptoms because of an increased rate and those that are presenting them because of something entirely different.

It has been stated that ten per cent of all the cases coming to cardiac clinics had hyperthyroidism, while ten per cent of all goiter clinic patients should be going to cardiac clinics instead.

One will frequently find in exophthalmic goiters patients presenting all the hallmarks of the disease with a normal or subnormal basal rate because it frequently happens that exophthalmic goiters go through the cycle of development with recession of changes in the gland and hypothyroidism supervening, but the damage done to the nervous system and the circulatory apparatus remains, just as it frequently happens that after an operative procedure carried out for removal of the gland there is left evidences of the disease and damage nothwithstanding the fact that the patient has had the benefit of the best kind of treatment.

Basal metabolism is of just as much value in determining the hypo cases as the hyper cases. Women that tend to take on weight about the time of menopause have, in a large per cent of cases in our series, shown low basal rates.

If one wants to treat these cases scientifically the basal rate must be known. Otherwise, one does not know how much thyroid to give, when to increase it, or when to cut it down because symptoms are not a sufficient index as to what dosage is sufficient. We have frequently treated patients with hypothyroidism and watched then through periods of rapid heart action without change in dosage, a confidence rooted in our knowledge of the basal rate.

In these cases of hyperthyroidism, with a basal metabolism study one can more accurately and scientifically determine the progress of the treatment. It is an index to the good the treatment is doing or its potential harm. And, finally, it is our belief that in these hyperthyroid cases the administration of iodine in some form in addition to the thyroid gland substance that is being given is far better than to depend on the thyroid substance alone because in the majority of these cases there still remains the possibility of having the thyroid utilize more iodine. The single exception to this rule, never to be ignored, is the hypothyroid case with an adenoma. Such cases should be given thyroid substance only since iodine may convert it into a toxic adenoma. (Applause).

W. A. Jenkins, Louisville: Concerning the use of iodine as a therapeutic agent in pathological states of the thyroid gland, I think we may roughly and quickly summarize this under three or four heads.

First would come the prophylaxis. This represents and stands upon an unassailable basis. It is everywhere recognized throughout the civilized world that the use of minute amounts of iodine given in childhood do possess the power of stabilizing the function and the capacity of this gland and of preventing the various aberrations that are prone to occur as the individual grows along. That has been proved abroad very definitely. It has been proved in this country. The experiments in our large public schools throughout Ohio and through some of the larger cities in the East, particularly around the Great Lakes supposed to be the goiter zone, have grown to be of very great advantage. The fact of the matter is that it is so generally used now that one can go down to the Piggly Wiggly on the corner and get a can of iodized salt.

The method of use of iodine in this prophylactic procedure is that of placing iodine in either drinking water or some article of food. I think the salt is perhaps the best. I think it is a very excellent thing. I was about to say that there is practically no danger from this procedure at all. Not long ago I saw an article in the medical journal by a very prominent man advising very strongly the buying of salt with the iodine and using it at the table.

This is one of the best ways of getting the iodine in prophylaxis. The only danger would be in an individual with an early type of toxic goiter, either the exophthalmic goiter or the adenomatous. It is very unusual for it to occur under thirty.

Prophylaxis is the first great and important therapeutic procedure for the use of iodine.

Goiter is prone to occur in young women emerging from girlhood to womanhood. This simple type of goiter is benefited by treatments of this character by the use of iodine, or preferably if you wish, by the use of an appropriate amount of thyroid gland at appropriate intervals with periods of rest. You do not have a certain other type of hormone substance which is possessed by the gland substance beside the use of the iodine proper. There is a second very great usefulness.

Another use is one that has been resorted to in modern times, or at least revived in modern times, and that is the use of iodine in the early stages of exophthalmic goiter. This now rests on a pretty fair basis. It is used by practically all of us until we turn the case over to the surgeon or in managing a case in conection with the surgeon.

In a case of toxic goiter we place the patient in bed and make the other usual efforts to quiet the symptoms and prepare him for operation. Iodine is a most excellent thing to use here. However, we have to be very careful about the use of iodine to see whether or not we have an adenomatous type of goiter which is taking on toxic manifestations. Here the iodine will do harm. Lugol's solution, or whatever solution you are using will do harm rather than good. It is a question of exercising judgment and skill in determining the types of cases.

In using the iodine in the latter type of cases the laity and the uneducated physician seeing a case that needs an operation resort to the Lugol solution and the patient persuades the doctor to continue the treatment rather than resort to an operation. Thus they get temporary benefit but the underlying toxic conditions are breaking down the strength and they are getting nowhere. That is a phase of the subject that should be looked after. It is true, aso, that the laity themselves have procured Lugol's solution for some of these toxic cases.

I have had the experience of cases that were definitely adenomatous, and through reports emanating from the Mayo institution and elsewhere of the magical results obtained by iodine, and not understanding the limitations, they have taken it over long periods of time and have undoubtedly accentuated the toxic effect, increased their symptoms and done themselves a great dea lmore harm than good, and increased their risk as a surgical procedure.

John R. Wathen, Louisville: We have been very much instructed by these excellent papers and the fine discussion of the two men who have preceded me. I can only emphasize a few points they have brought out.

I think we should make a clear cut distinction between the two types of toxic goitre ,the exophthalmic and the adenomatous; both as regards the symptoms, the pathology and treatment. We should also discuss the use and abuse of iodine. I am glad to see the pendulum swinging in the right direction.

In exophthalmic goiter, one of the types of toxic goiter, as a rule the patient appears for treatment at from thirty to thirty-three years of age. It gives a short history of two or three years previous complaint. It is rapid in development, accompanied by pronounced tachycardia, high metabolic rate, good appetite, enlargement of the thyroid gland, protrusion of the eyes and many of the other symptoms. It yields but temporarily to Lugol's solution of iodine. Iodine carried over a long period of time seems to lose its effect and produces more harm than good.

Let us contrast this with the other type, toxic adenoma, which usually occurs about the menopause at forty to forty-five years of age. The gland is not as large as a rule as in the exophthalmic type and most often is bilateral, where the exophthalmic goiter is often unilateral. This type is characterized not by the effect upon the central nervous system as in the exophthalmic goiter, but characteristic of this poison is that it expends its energy on the cardio-renal system. Most of the tachycardia in exophthalmic goiter disappears fairly rapidly if the patient has not gone too far, but in toxic adenomatous goiter there is more damage in these women of from forty to forty-five. Quite often they are associated with auricular fibrillation.

In exophthalmic goiter we make a test before the Lugol's solution is given and we make one after. Then we contrast the metabolic rate after the treatment and before. Iodine is more or less dangerous in toxic adenoma. We refer the cases to the electrocardiographic men and they show us where we have auricular fibrillation that we were not able to detect otherwise.

As regards the treatment, a local anesthetic should be used. We use novocain by nerve blocking. No general anesthetic toward the close of the operation or at any time, and in toxic adenomas where you have a badly damaged heart these should be operated by every one under local anesthesia if you expect to save the patient with the damaged heart. We are taking these cases with auricular fibrillation and are able to handle them using local anesthesia.

In regard to the question of the preparation of toxic adenomas, and especially those with auricular fibrillation, that is a very interesting point. I am sorry Dr. Simpson and some of the others haven't alluded to that. Dr. Plummer, of Rochester, Minn., has recently stated that they have reduced their mortality in auricular fibrillation cases from five per cent down to one per cent, which corresponds to the exophthalmic per cent, by avoiding the use of digitalis. They claim they die with edema of the brain. All other specialists seem to prefer digitalis, but Plummer claims that is a harmful remedy. The clinics in various parts of the country are differing. I wish some of the heart specialists would elaborate on this point. I have made it a rule, in a case of toxic adenoma, to have one of the heart specialists in our city watch the case entirely through.

F. G. Aud, Louisville: The operative mortality rate in goiter is now running around one per cent, which compares very favorably with the mortality rate for all surgical operations. In fact, I think it is slightly better. The general mortality rate for all operations woud be nearer two per cent than one per cent.

It seems to me that any further improvement in this low mortality rate must come through getting these patients to operation earlier. We are not going to reduce this one per cent mortality very much through further refinement of surgical technic.

If we get these cases earlier I do think we will be able to reduce this mortality slightly. The degenerative changes are secondary to the toxic symptoms, or rather the toxicity of goiter is responsible for the greater part of this one per cent mortality. We are trying to get these cases to operation before they develop secondary degenerative changes of the heart and kidneys.

As we know, the degenerative changes that follow the adenomatous type of goiter usually occur about fourteen years after the presence of the tumor is noted. The secondary degenerative changes following exophthalmic goiter come on at about three and one-half years following the onset of the goiter.

This would seem to show that the intoxication of exophthalmic goiter is far more severe than the intoxication that comes with adenoma.

There is another point that should be brought to mind, and that is this: Doctor Simpson mentioned the fact that his metabolic rates run higher on the adenomatous cases than on the exophthalmic when taken as a class. A great many authorities at the present time believe that we never have a simple adenoma or a simple exophthalmic type of goiter, that whenever we have one we have the other. A certain portion of the thyroid gland may present a pathological picture of a pure adenomatous type and some other portion of the thyroid gland may present a typical hyperplasia, so we should bear in mind that we probably are not dealing with simple exophthalmic goiter or with a simple adenoma. We are dealing with a complex problem.

Another point I want to emphasize, that hasn't been emphasized sufficiently, is that one of the essayist said goiter occurred as a rule at about thirty-two years of age. That is true, but we shouldn't overlook the fact that children have goiters. Very young people have exophthalmic goiter and have it seriously. Of course, if a child has an adenoma it is perfectly apparent that he has a goiter, but a child may have an exophthalmic goiter which may easily be overlooked.

W. O. Johnson, Louisville: After hearing three such excellent papers, and such an inclusive discussion, one in a further attempt to discuss these papers, must either begin at the beginning or at the end. So I will attempt to begin before the beginning.

The question of prophylaxis in the treatment of adolescent goitre is of prime importance in the beginning, and will play a great part in the solution of the goitre problem.

The one point in the treatment of the adolescent goitre is to treat all mothers who have had adolescent goitres, mothers with goitres, those who have goitres develop during or following pregnancy, by the administration of iodine during the pregnancies, under the care of a physician. By this method the bodily needs of the mother are supplied, and it also prevents the formation of fetal adenoma in girls of the first generation and adolescent goitres in both boys and girls in the second generation.

By the administration of iodine to the mothers who need it, during the prenatal period and during the period of lactation, I believe that this attacks the goitre problem in its very incipiency and is a big step forward, towards the solution of the goitre problem.

To me this discussion has been very profitable and instructive, and I am certainly very grateful to all those who have taken part in it.

Louis Frank, Louisville: I arise to draw attenion to one or two points.

First, I want to reiterate a note of warning. It has been stressed by several of the speakers, and is that there is danger of indiscriminate administration of iodine. We have had patients referred who have been made worse by giving iodine. Not only the laity but some of the profession have misunderstood the uses of iodine and just what types of cases it should be used in. I hope we will remember what has been said on the subject this afternoon.

We make it a rule, however, as mentioned by Dr. Aud, to give iodine in every case for several days in the course of immediate preparation of the patient for operation because there are so many of them in which there is a hyperplasia as well as an adenoma. Even when we find evidence of only adenoma we give iodine nevertheless in pre-operative preparation.

Another point I wish to speak of is the significance of the basal metabolic rate. This rate is absolutely no evidence whatsoever of the operability of the patient. We have seen patients with low metabolic rates that reacted badly following operation. We have seen patients with very high metabolic rates that showed little or no reaction, so as an index to the operability of the patient and what the patient will do following the operation it means very little if anything.

The repair of damage done by the toxicity has been spoken of, and I want to call attention to that point because we find a good many cases that are referred to us are very ill in which major damage has been done to the heart. Quite frequently this will all disappear following the operation but this damage cannot be repaired at the late stage of the disease, hence the reason for early recognition and early operation in goiter. We believe just as soon as the goiter is recognized as being of a certain type, so soon should that goiter be removed surgically and not treated by other means.

The evident size of the gland has nothing to do with the toxicity. Dr. Simpson will remember an individual who had gone for a number of years to the age where toxicity was showing yet she had hardly any enlargement at all, with a very small adenoma.

Dr. Gardner will remember a young woman brought to the hospital who they thought had lost her mind. I had had her under observation for years and it was very hard to convince the attendants that she had a goiter. Her metabolic rate was not high so they decided to treat her with the x-ray. The reaction was tremendous. She almost lost her life following the preliminary treatment. We later removed the gland by graded operation. So the size of the gland and the enlargement is no index to the amount of toxicity nor the operative reaction. Quite frequently the gland enlargement may be entirely overlooked and the casual and cursory examinations that are ordinarily made are not sufficient to determine whether or not the patient has the enlargement.

I want to say a word about the surgical treatment and the reduction of mortality. This does not depend alone on the anesthetic but also depends on the graded operation. We lost a patient within the last ten days because following unipolar ligation under local anesthesia he did so nicely we thought we could ligate the other pole at the same sitting. Within forty-eight hours the temperature was up to 105 and 106. Probably had we been satisfied with the ligation of one pole only delaying the second ligation we might have gotten him through. Therefore, graded operations, as well as careful selection of anesthetics, are very important. These things are of equal importance to the preparation of the patient in the reduction of mortality.

Walter I. Hume, Louisville (in closing): I appreciate the generous discussion. I think there is nothing in particular that I want to speak to in closing except that I do want to mention again that endemic goiter may be prevented and this is a challenge to us all. Perhaps adenomas of the various classes will be kept from the surgeon one of these days. We should get busy and prevent endemic goiter. Exophthalmic can probably not be prevented. Iodine doesn't prevent exophthalmic goiter as I understand it.

Let's recognize goiter that is existent early and educate the laity to a litle bit earlier recognition. My paper is in the main a plea for earlier recognition and earlier treatment of surgical goiter. Stormy operations and stormy recoveries and even deaths occasionally can be largely prevented by early recognition and prompt operative treatment of strictly surgical types of goiter.

I am sure one way to avoid some of the dramatic post-operative reactions is to get these cases early. Early diagnosis is just as important in toxic as in any other disease, as for example, appendicitis as someone has stated in this discussion.

A New Method of Handling Small Bladder Diverticula.—After the diverticulum has been pulled up so that the mucosa is on a level with the bladder wall, Frank S. Schoonover, Jr., Fort Worth, Texas (Journal A. M. A., Oct. 11, 1924), has made this addition to the usual technic: Instead of excising the mucosa, a mattress suture has been placed in such a way that the loop of the suture passes through the bladder wall on each side of the original orifice of the diverticulum and is then tied tightly. This method brings the bladder wall of the opening together entirely outside the diverticulum itself. The mucosa of the diverticulum is slightly redundant, but is not disturbed. This method is applicable only to that type of diverticulum in which the whole wall of the bladder is not included in the sac; that is, where the diverticulum is a true outpouching of the bladder mucosa through the muscular wall of the bladder.

A FEW PRACTICAL APPLICATIONS OF PREVENTIVE MEDICINE BY THE GENERAL PRACTITIONER.*

By R. Emerson Smith, Henderson.

As we look back and catch a glimpse of the past we come to believe that there is "nothing new under the sun," and there is no profession in which it is more true than in the medical profession, for we deal with men, and although each generation has a new personality, still we find the past as an unchangable background. There are physical, moral and spiritual laws that do not change with each successive generation, for these laws were not evolved or ordained by man, therefore the sphere of human activity must take place and be governed and limited by the laws of nature.

We have today manuscripts telling us of the dangers of infections which are so common after operations on the eye, dating back fifteen hundred years before the Christian era. We have the obstetrical instruments found in the ruins of Herculaneum and Pompeii,—are they different from us? No, almost alike in every detail.

We might spend the night talking about the operative procedures and the diseases caused by micro-organic life which the ancients discussed and described accurately. Yes, and we have forgotten that some arts were lost. We can no longer make the dyes used in Tyre and Sidon, nor can we make the Damascus blade, nor do we understand the art of embalming as the Egyptians did, and the Peruvian Indians did and do still, nor do we know anything about the deadly poison curari used by the Brazilian Indians on his arrow points, nor the substance which he carries in a small bag which is an antidote to this poison.

It is all new and again it is all old as love itself, so is the race of man. We hear of the great discoveries of the twentieth century and of the great advance of "hygiene and sanitation", and we have advanced in many ways, but the great fundamental principles of "Preventive Medicine" are all to be found in Leviticus, beginning with the fourteenth chapter.

If we look over the history of the world we find laws on "Public and Personal Hygiene" being enforced either in a religious edict or a part of religious rights and customs, or coming from the oracles. Again we find the edict of kings and emperors which are surprisingly clear and up-to-date when we look at it from our present day knowledge.

Disease has long been considered as a visitation from the gods, but we find in all ages men who have thought and come to the right conclusion as to the cause and effect, and we see them trying to remove the cause of disease and placing the causative factor before the community. Now with the present knowledge we find that the public mind is thinking about its welfare and no longer are the people waiting on the medical profession to act. They are organizing clubs and leagues, anti-tuberculosis, anti-venereal, ect., etc. The Red Cross has taken up the question of preventive medicine, the Rockefeller Foundation has a world-wide view of sanitation.

We see that with the present means of communication that diseases that were unknown fifty years ago are now becoming common among us. The great moneyed interests of the world see the absolute necessity of "Prevention." The Panama Canal is the most glaring example in history, the French undertook to build it and failed, the English did the same, the United States sent out a sanitary commission under General Gorgas, then came the engineers, then the Canal became a possibility, but only after sanitation. The new railroads that are being built in Africa, South America and Asia, are all sending out ahead of the engineers, the sanitary commission. Why? Because "Prevention" is the road to success and fortunes are now made, due to the proper use of our knowledge on epidemiology.

Although the medical profession has been hindered and the advance in science has been slow, due to the criticism and antagonism of the church and society, the day has come when the public mind is no longer going to wait on the medical profession to take the lead in "Preventive Medicine." And the public is demanding that cities and states remodel and reorganize the institutions which have been founded for the purpose of protection against disease and to increase the health of the nation, thus bringing about an increase in power and production, for health means power and wealth to any and every nation that posesses it.

In taking up a subject as vast as "Preventive Medicine" we will not try to make an exhaustive exposition of the subject nor will we go into the speculation and probable hypothetical theories. We will endeavor to discuss that part of preventive medicine that largely depends upon the individual citizen and the knowledge that he must have that will enable him to protect himself against disease. Of known diseases over fifty per cent are of bacterial origin. These diseases may be due either directly or indirectly to infection. These infections in turn may cause definite lesions or they may set up certain metabolic changes producing a disturbance, local or general, in the human organism leading to a definite lesion of some organ or system in the human being.

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*Read before the Daviess County Medical Society, Owensboro.

These specific infections do not all manifest themselves immediately. Frequently the changes that follow do not manifest themselves until years later. For instance, we know that the most frequent predisposing cause of tuberculosis is measles, due to the lowering of the vitality or of some definite organ or system, or to some pathological changes, either in the lung tissue itself or the lowering of the resistance of the body in general. We are also well aware of the fact that diet has much to do with the development of nephritis, gout, rheumatism, diabetes, and likewise the intestinal relationship between eczema in infancy and asthma later on in childhood, and it is a deplorable fact that is only too often overlooked by the medical profession, that many diseases that we treat in the adult, have had their beginning in early childhood or in infancy. Hard manual labor, exposure, alcohol and chorea are predisposing factors to heart disease and arteriosclerosis.

In the last twenty years the medical profession has been realizing more and more that the greatest and most valuable service that we can render humanity, lies not in trying to treat a disease after it has made its appearance, but in trying to prevent disease. We are all well aware of the inability of the human system to repair damaged tissue. The inability to repair is restricted to a small proportion of the body tissues and even those tissues of the body that regenerate, or make an effort to do so, invariably leave scar tissue and all that accompanies the contraction and the deformities produced by cicatricial tissues, leaving a damaged organ or ill-functioning system.

If we go back to the period of Hippocrates and Esculapius, we cannot help but marvel at the logical deductions drawn by these and other illustrious pioneers of the medical profession and it behooves us at times to look at the problems that confront our profession through the eyes of a philosopher. It has been said for a physician to be an able practitioner he must be a philosopher. Science is daily adding to the vast fund of knowledge that lies at our doors. It is impossible for any one man to grasp it or to try to use it all, but the time has come when the medical profession must specialize.

We know that in recent years many articles have been written on the great necessity of the family physician who is fast disappearing. This individual is a most needed and a most essential part of the medical profession and to this individual more than to any is necessary that prerequisite of his being a philosopher.

We might stop for a moment and ask why he is disappearing. Is it not because the fees which he receives are so utterly inadequate for the services rendered, that he has stepped out of his sphere of diagnostician and advisor, and has taken up some specialty or has endeavored to practice several branches of medicine? For it is the specialist who gets large fees; and if he restricted himself merely to the practice of medicine, a large fee is something that he knows nothing of and he is constantly referring his patients to those who are properly remunerated for services rendered, and who do not undergo the hardships that confront the practitioner.

This has brought about a condition which has held back the science of medicine. This has prevented in many instances the handling of epidemics in a logical and scientific manner, and for that reason a separate science has been evolved in medicine which we term "epidemiology." Now we are finding many who are being trained and whose duty it is to prevent the outbreak of widespread infections. This applies, as we have mentioned above, only to a little over half of the ills to which mankind is subject.

In "Preventive Medicine" it is necessary that we summons the aid of the educator, of the law makers of the nation, as well as the law makers of the commonwealth, of the county and of the village. The crying need of civilization today is that we place before the rising generation, the knowledge that we have at our disposal and the means by which diseases may be prevented.

Would it not be a far-reaching step in that direction if our Whole Time Health Officers were to have an extra burden placed upon them of lecturing to the schools in the counties where these Whole Time Health Departments have been established? For without an intelligent cooperation of those that compose a community, it is impossible for any organization to function with the highest possible efficiency. This cooperation must be an intelligent co-operation, for merely going through the routine of disinfection or relying on some supposedly "fool-proof" method of prevention invariably brings disaster.

It has rightly been said: "Know the Truth and Truth shall make you free." If the fundamental principles of hygiene and sanitation with special reference to epidemiology, be brought before the rising generation, will we not be able in this way to bring about a wholesome co-operation and a willing endeavor on the part of the public to protect themselves? We believe that this is our strongest weapon but this does not mean that we are not sorely in need of laws by which those in authority can force the individual who has never had or has lost the realization of his responsibility toward the community in which he lives, to co-operate and abide by these means that are being used to prevent disease even if it is necessary that these individuals be made to realize that the State is not only willing but is determined to protect others and the individuals themselves against their own ignorance or willfulness.

As we look over the educational system of our Nation and as we see the comments passed by those who are in a position to express an opinion on the subject, we cannot help but realize the inadequacy of our education. Would it not be more logical to teach our children how to live so that they might preserve their health and enjoy to the fullest the talents and gifts that God has given them, and so train their bodies and their minds that they may give to the Nation and to mankind the very best of a sound body and a well trained mind? It is a sad fact that the Nation loses over fifty per cent of our very best minds, especially in political and commercial enterprises, at the zenith of their efficiency, and these losses to a large extent could be prevented if they had been taken in time or if the individual had been trained and had the knowledge which is held by the medical profession.

The public is now beginning to realize more than ever before that a sound mind and the power to produce work depends to a great extent on a sound body. Was this fact not brought home when we began examining the men of our Nation to see if they were physically fit to undergo the hardships of war? If we stop for a moment to examine our statistics we will find that over thirty per cent of the male population is far from perfect, both physically and mentally.

The theory of contagion is one which has been set forth to explain the causes of pestilence that at one time or another has swept cities, communities and nations. Niculous Massa in 1540 was one of the first who openly and fearlessly made the assertion. After him we find Victor Bonagentibus and in the writings before the Christian era, more than once has this theory been advanced but a "decisive victory of the theory of contagion was first obtained by the works of Marsaria in 1577-78 during the bubonic plague in Vienna." "Of extreme interest was the first inkling of the bacterial origin of the plague. The Jesuit Father, Athanasius Kircher of Fulda, was of opinion, as we read in the treatise on the plague by Johannes Americanus in 1667, that he had discovered something peculiar and had got at the bottom of the matter. 'Thus', he writes, "that the plague is nothing but a multitude of small animals and diminutive worms which fly about in the air and when drawn into the body by the action of breathing, they vitiate the blood, impair the spirits, and finally gnaw into the flesh and the glands. When they fly from an infected body or in some manner are received by a healthy subject, the plague is spread by them. Protection against them could be obtained by lighting large and flaming fires by mean of which their wings, feet and proboscis, etc., etc., are burnt off so that they can no longer fly about and vitiate the blood of human beings and gnaw their bodies."

By means of magnifying glasses he had observed that the air was full of worms, and by various experiments he proved that decaying matter produced worms and described accurately how the experiment was carried out and that they could then be seen under the microscope. "But," he added, "it must not be believed that any usual microscope will serve; it must be like mine which enlarges a thousandfold."

We have today manuscripts dating back fifteen hundred years before Christ, giving detailed accounts of how operations for cataract on the eyes should be performed, warning us of the danger of infections which are so common after these operations. We have obstetric instruments found in the ruins of Herculaneum and Pompeii. We are struck with surprise at the similarity of these instruments when compared with those that we possess today. The art had been lost and buried, and the human mind again evolved the instruments adapted to the anatomical parts and the purpose for which they are used. The measurements of the various obstetric forceps are surprisingly exact if we consider those we use in the twentieth century as a standard.

We know that there are some diseases that can be prevented and the method by which they are prevented are in many instances common property of the public, but in others the medical profession has failed to realize the fact that the methods used to prevent some diseases have not been properly taught to the public and these diseases in many instances are not considered by many members of the profession as preventable. Concrete instances, syphilis and gonorrhea. Proper prophylaxis will prevent these diseases. We might mention many others. We will take the liberty of rapidly going over some of these diseases. For instance, typhoid fever, and para-typhoid, this is no longer a disputed fact that these diseases can be prevented by proper inoculation. In diphtheria we have the toxin-antitoxin. In malaria, the individual may safeguard himself against this infection, even if exposed to the infected mosquitoes, by adequate doses of quinine, provided this quinine is in a form that is readily absorbed by the tissues. The logical thing to do of course, is to exterminate the mosquitoes. This is so simple that any child of twelve may be taught the methods employed. Scarlet fever, rabies, small-pox, tetanus, whooping cough; these diseases are also preventable by inoculation, either by vaccines or anti-sera.

There are diseases, so-called of "soil polution", such as hook-worm and other intestinal parasites. These are instances of diseases which we might class as belonging with syphilis and gonorrhea as far as prevention is concerned. It lies entirely with the individual and not with the physician to prevent these diseases.

Does this not bring us to the question as to the duties of the medical profession in placing before the public in a definite, concise and lucid manner, the methods by which these diseases may be prevented? Is not the public losing a certain amount of faith that they had in the medical profession, due to the fact that physicians are failing to realize their responsibility in enlightening the public on prevention of disease? Medicine is sadly in need of publicity and has not the pendulum swung too far the other way "due to the chalatan and quack who is advertising his wares" and the medical profession at large has hesitated in fear of any statement that might be made could be misconstrued and called "advertising." Many groups have arisen which are well organized with the sole purpose of attacking the medical profession. They do it openly and continuously. The time has come when the medical profession should call upon every available means to disseminate knowledge and to expose the fallacy and ignorance which is causing the loss of thousands of innocent lives yearly in this country.

The ignorance of the public in regard to disease is used by the unprincipled individual or individuals as a means of financial gain, and it is our duty to try in every way possible to remove this ignorance and to place before the public the facts and the means by which disease may be combatted.

It would have been an unpardonable and criminal negligence if our Government had said to the officers and soldiers of our army: "You can take your typhoid vaccine and be vaccinated against small-pox if you desire." If this privilege had been accorded to the personnel of the American army, I doubt whether ten per cent would have requested this "dreaded means" of preventing disease, but with the information and the knowledge that was given it was remarkable how willingly in most cases the men were to be protected against any and every disease.

The object in speaking before you this evening has been one, not of finding fault with the medical profession nor in criticising what has been done, but to try to call to the attention of the profession to the wonderful opportunity that lies before us in making the knowledge that we have at our disposal, a most powerful factor in freeing our nation from diseases which have in ages past disseminated civilization, and other diseases which are holding down prosperity and which prevent the people of civilized lands from enjoying their life more fully, and has prevented them from putting into their life's work the energy and vigor which is the God-given privilege of every man, to say nothing of those whose lives are shortened either the usefulness of the individual or life itself.

The war has created for us some difficult problems but along with these problems we have a period full of opportunities and possibilities. Our experience during the war has brought out some conditions which we had no idea existed. This knowledge is a challenge to the medical profession. The statistics that we will use are those of 1914. We have not used statistics that are more recent, due to the fact that I have noticed some glaring differences in comparing certain statistics of 1925 and for this reason I am using older statistes which seem to be accepted, but they will be few but all sufficient for the intelligent physician need not have an exhaustive statistical report to realize the necessity of co-ordinated efforts.

In taking up preventable diseases and especially those groups of diseases that fall largely to the individual to prevent and not to the medical profession, we will consider in the first place venereal diseases. The percentage for every thousand population in 1914 were as follows: France, 67.8%; Austria, 54.2%; Finland, 19.8%; Russia, 62.8%; United States, 67.8%; United Kingdom, 68.4%, and now as in other times in the history of the nation, is needed sound judgment, a broad view of the possibilities that lie before us and plans that will reach far into the future. The health authorities must plan for the future generations as well as for ours, and a firm, sound policy is of paramount importance today.

One-fifth of the insane are cases of general paresis and ninety per cent of these cases give the Wassermann reaction. Gonorrhea is the cause of fifty per cent of the cases of sterility. In 1913 gonorrhea was the cause of 11,991 recorded cases of blindness. There is estimated in the United States over 100,000 blind due to gonorrhea and there is over one thousand added to this number yearly.

As we look as these statistics it is more than evident that there is a problem facing the epidemiologist and the medical profession in general, for the percentage of the infected cases do not correspond to the knowledge that we have regarding prophylaxis and prevention of these diseases. We question whether there is a more important hygienic problem today that should have the serious consideration of the medical profession than this of venereal diseases. We cannot shift the responsibility of our profession to the shoulders of the Federal Government. The physician who is in personal contact with the individual and with the community in which he lives must realize that it is a part of his mission to educate the public. for the far reaching effects of venereal diseases as regards sterility. blindness and premature births. and its indelible mark on posterity and it is conceeded that fifty per cent of all operations performed on women are necessary because of the pathological conditions that have resulted due to venereal infections.

If we discuss this matter of venereal diseases we will not hesitate to mention the fact that prostitution must be handled from an open and frank standpoint. Medical prophylaxis should be given to the individual without cost. This should be furnished by the Federal, State or County funds.

We will mention a few diseases which could be utterly stamped out if we make a concerted action to place before the public the proper means by which these diseases can be prevented. Typhoid, para-typhoid, cholera, dysentery, emebic dysentery, intestinal parasites such as hook-worm, ascaris lumbricoides, tenia saginata and tenia solium. These diseases are contracted by the use of water and foods. Proper prophylaxis against flies, against disposal of sewerage, proper cooking of foods, and proper supervision of the milk supply, and if the water supply is not a safe one, by boiling the water.

These facts could easily be taught in our graded schools and we feel that it is the duty of the State Board of Health to request the state government to allow certain courses on hygiene and sanitation to be taught in our schools by competent instructors, and we are not referring to abstract theories but to practical and definite knowledge.

This brings us to a very vital question and that is, are the text books used in the primary education on physiology and hygiene adequate and are the authors of these books in any way qualified to write on the subject? I ask the medical profession to read the books that are being used by our children and it will not be necessary to make any further comments on the subject.

We will again refer to the statistics of 1914. In the United States in 1914:

Insane and feeble minded	200,000
Deaf and dumb, over	100,000
Paupers in institutions	80,000
Prisoners, over	100,000
Juvenile offenders in institutions	23,000

In 1904 over 2,000,000 defectives were cared for in hospitals, dispensaries and homes. We have to support over half a million insane, feeble minded, epileptics, blind, deaf and dumb; 80,000 to 100,000 paupers at a cost of $100,000,000 a year.

Might we not say in regard to the deaf, dumb and insane that a few concise facts might be placed before the public regarding eugenics. For instance the marriage of first cousins and of its effects on posterity. When we look at the insane and feeble minded and realize the fact that ninety per cent of these cases are attributed to alcohol, heredity and syphilis, it is high time that the public is made to realize that the responsibility of preventing the oncoming generation from becoming "hostages to fate," lies largely, if not entirely, in the hands of the rank and file of our population and not to the medical profession.

It has been estimated in the United States that 160,000 die annually of tuberculosis. Of the 100,000,000 people in America today, there are 8,000,000 doomed to die of this disease. The mortality from this disease varies from 10% to 25% of the total mortality of the world. Fully one-seventh of the population of the world die of this disease. This can be compared to the mortality of smallpox in the 13th century, as many as 2,000,000 dying in one year in Russia. In Mexico it killed 3,500,000 and at one time it caused one-tenth of all deaths in the world. Since vaccination and compulsory vaccination, smallpox is one of the diseases which is least feared by the medical profession.

Rome was destroyed and her glory faded due to the tryponema pallidum and to the plasmodium of malaria. With all due deference to the opinion of the historians, and it is from their own statement, in which they place before us without the slightest shadow of doubt, the unmerciful hand of disease which wiped out of existence nations and empires. Greece suffered a like fate, so did Egypt, and so did Babylon, and to convince us of these facts we need but to read the records that are preserved from those times.

The present war has brought out some interesting facts about the general health of the nation. We have during the time we were at war called by the draft and registered 9,952,735 men. 6,750,000 were not examined; 3,208,448 were examined and seventy per cent were found to be fit mentally and physically; 29.6% were found to be lacking either mentally or physically; 2,124,239 were sent to camp and of this number 92% (91.9) were found fit; 8% were rejected in 1918. We find that approximately 30% of the rank and file of men in this country are unfit for military duty.

The war has shown beyond the possibility of a doubt what preventive medicine can do and has done. The scourges and plagues that have made the wars of the past hideous, were held in check in the A. E. F. where the epidemiological work was directed from one point and all investigations and to a large extent the supervision of combatting these epidemics were controlled by this unit.

Centralization, co-operation and co-ordination are indespensible essentials to all success. In Saxony, bubonic plague, typhus and dysentary killed 934,000 inhabitants in three years beginning in 1632. Germany which was at war, lost 12,000,000 of her population, decreasing from 16,000,000 to 4,000,000. In 1809 Napoleon had his army vaccinated against small-pox.

We could go into the histories of our wars of independence, and of the civil war, and the great disasters which have occurred to commerce and have destroyed nations, but we have said enough and we will briefly bring this to a close. How are we to remedy these present existing conditions. Each locality is a problem to be studied separately and to be made to fit into the cogs of the great Federal Board of Health.

The difficulties to be encountered in a well organized County and City Board of Health can be reduced to these:

1. The lack of proper attention and time given to the study of the local conditions of a community by the health officers.

2. Lack of definite plans to meet the conditions that exist.

3. This is produced by lack of proper remuneration to the health officers so that they can give their undivided attention to this work.

4. There is a lack of co-operation between the city authorities and the health authorities in many instances.

5. The most important of all is the lack of proper health laws and their enforcement.

6. Lack of trained men to do the epidemiological work. This lack is now being met by the State and Federal Government.

7. The lack of examining boards and state boards for the community for tuberculosis, venereal diseases, child's welfare and for the proper examination of school children.

There must be centralization of authority and with it the necessary laws and enforcement of laws. We must educate the medical profession in:

1. A separate course in "Preventive Medicine" should be given and required by every medical school.

2. The standard of medical education must be raised.

3. It is essential that physicians take post graduate courses to keep up with the scientific discoveries.

4. Every state should require two years of internship in hospitals before granting a physician a state license.

A definite policy should be outlined and should be strictly adherred to and the Board of Health should have enough power invested in its organization to be able to carry on this plan without personal or political interference.

1. Divorce the public health officers from the city, county and state politics. This is essential to bring about proper results.

2. Proper education of school children in hygiene, both personal and social.

3. Proper laws and proper enforcement of laws.

4. Proper institutions for the public, such as hospitals, clinics and isolation hospitals. This should include more institutions for the study and treatment of mental diseases, tuberculosis and epidemic diseases.

5. Publicity. The Board of Health should:

    1. Publish in the daily papers, articles on the diseases prevalent at the different seasons of the year and their means of prevention.

    2. Quarantine laws and disinfection laws with proper equipment for disinfection should exist in every community.

It is the duty of every physician to cooperate and endeavor to aid the city, county, state and federal health authorities (boards) in every possible way. To do this it is essential that all physicians co-operate with each other in the community in which they live.

The medical profession can depend on the co-operation of the various agencies which we have mentioned and also on the willing co-operation of the public press and it falls to the medical profession to lead in this most important undertaking and to co-ordinate these various agencies and to use these great and powerful agencies for disseminating knowledge so that they may use their energies to the best advantage.

The challenge that has been placed before the profession is one that I feel will be willingly taken up and the unlimited resources that lie within this profession both as regards preparation, skill and knowledge, is more than adequate to bring about this coveted change for the betterment of the health of our nation in a very few years.

PATHOGENICITY OF BACILLUS FECALIS ALKALIGENES.*

By M. Y. Marshall, Henderson.

In the August, 1927 issue of the "American Journal of the Medical Sciences" Dr. W. S. Wyatt, of Lexington, reported a case of bacteremia, due to B. fecalis alkaligenes, an organism closely allied to B. typhosus. He states that there has been only one case of infection with this bacillus reported in this country besides the case that he reports.

On account of the apparent rarity of this infection, I feel impelled to report a small epidemic of enteritis, in which the causative organism was in all probability B. fecalis alkaligenes. Some four years ago, during the month of August and about the first half of September, several cases, probably fifteen or twenty in all, of what was supposed to be typhoid fever, occurred in this community. Toward the end of the epidemic three or four of these cases occurred in the hospital where I was working, and came under my care. Clinically the cases appeared to be typhoid in a mild form, but a laboratory study failed to confirm this diagnosis. They all gave a negative Diazo reaction, negative blood cultures, and negative agglutination reactions with B. typhosus and B. paratyphosus A. and B. The stools were then cultured and an organism with the morphological and cultural characteristics, including the sugar fermentation tests, of B. fecalis alkaligenes was recovered from the stool in each case. No allied organisms, typhoid, paratyphoid, or dysentery bacilli were present in the stools. The diagnosis was then considered to be established for all practical purposes, and due to the pressure of other work, no further studies of the organism were made. In the light of Dr. Wyatt's paper, I am sorry that agglutination reactions were not performed with the organism recovered.

I realize that this fragmentary report is subject to severe criticism in that the causative character of the bacillus was not established beyond the peradventure of a doubt by agglutination reactions, but I believe that in all probability this bacillus was the responsible agent in these cases, and this communication is more in the form of a clinical note than as a complete report. I believe, further, that if these cases of clinically mild typhoid or paratyphoid which the laboratory fails to confirm as such, and which are not uncommon, are carefully studied, a good proportion of them will be found to be due to infection with B. fecalis alkaligenes, and that it is desirable that this fact be either established or be proven to be untrue.

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*Read before the Henderson County Medical Society.

ACUTE APPENDICITIS; A PLEA FOR EARLIER OPERATION.*

By E. W. Northcutt, Covington.

No apology is offered for having selected this subject. In going through the literature very little could be found on appendicitis and, one of the leading journals of the country was found to contain but seven articles on appendicitis from January, 1922, to September, 1927, inclusive. Two of these were on chronic appendicitis and quite brief, while three were reporting unusual cases, not the ones we are compelled to face in our daily work. There were numerous articles on gall bladder, stomach, duodenum, prostrate, etc., and yet the number of deaths occurring annually from appendicitis equals the combined number of deaths from diseases of the prostate, ulcer of duodenum and accidental and homicidal deaths from fire arms, exclusive of war deaths; it equals the combined number of deaths from ulcer of stomach, gall stone, diseases of the pancreas, spleen, thyroid glands, ectopic pregnancy, salpingitis and caesarean section. Fifteen thousand deaths occur annually from appendiitis in the United States. Eighty percent of these occur before the age of 50 years and a very large percent in the bloom of youth. The average age in prostatic deaths is above 60 years. Seventy-seven per cent of the deaths from cancer occur after the age of 50 years and eighty percent of deaths from organic heart disease occur after this age. When we consider the economic loss caused by deaths from appendicitis the number seems even more stupendous. Appendicitis in children is especially dangerous. It has been suggested that this is because of the greater activity of the lymphatic system in childhood. It is known that the progress of cancer is more rapid in the young than in the aged. Belly ache in children demands the same careful investigation as belly ache in the adult. Often by the time the mother gives a physic and paregoric and the doctor orders an enema over the phone it is too late for anything to save him. If the public could be brought to realize the danger that often lurks behind an acute belly ache, and if the doctor would investigate thoroughly every case of belly ache he is called to attend, and if he would insist upon operation during the first twelve hours of every case of appendicitis that he sees that early, the mortality from this disease would be decimated. It is the postponed and neglected cases that pile up the mortality.

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*Read before the Campbell-Kenton Medical Society.

Simple appendectomy in an uncomplicated case of appendicitis in a thin individual is a comparatively easy operation and is usually the portal of entry to surgery. However, a retrocaecal appendix in an individual weighing 250 pounds with a caecum that cannot be brought up into the wound presents a difficult situation, the gravity of which is greatly increased if the appendix is ruptured.

Cutting and sewing is not all that is required in surgery. This applies to nothing better than operations for appendicitis. One should not be a slave to routine, but certain surgical and physiological principles should be kept in mind and followed out. Every case should form a separate and distinct study and should not be treated according to a formula. We should study the patient as a whole—is he a good surgical risk? If not, what is the hazard? Can it be overcome or lessened? How? Oftentimes much can be done in a very short time to make him a better surgical risk by the administration of glucose and sodium bicarbonate solution intravenously. What kind of anesthetic is best? It may be the margin of safety is so narrow that any general anesthetic is prohibited and only a local should be used. The anesthetist should be taken into the case and should be able to evaluate the findings from the standpoint of the anesthetic. Repeated blood counts should be made and carefully studied. A low white count with a high percentage of neutrophils indicates poor resistance on the part of the patient or a severe infection and usually means a guarded or bad prognosis. A high count with a low percentage of neutrophils is a favorable indication. In making the repeated counts is the percentage of neutrophils increasing or decreasing? What is the percent of disproportion? One can often judge by this whether his patient is losing ground or whether his resistance is holding up.

The operation should consume as little time as possible consistent with good work. When the patient is returned to bed it is usually well to give 1000 cc. of normal saline solution subcutaneously. If to this solution is added 30 cc. of 1-2 percent novocaine solution the procedure is painless and absorption of the saline seems to be more rapid. The patient must be watched closely for any complication and frequent checks should be made on the blood count. If the count remains high and, especially if the percent of neutrophils remains high it means that all is not well and may be the indication of the formation of an abscess or beginning peritonitis. He should be given liquids by mouth as soon as vomiting ceases.

It is neither practical nor possible to discuss the different methods of handling the various types of appendicitis here. The aim of each and every one of them is to save life and prevent morbidity. In my opinion the surest and easiest way to do this is to operate early before gangrene, perforation, abscess formation or peritonitis has had time to develop. And to make a plea for this is the purpose of this paper.

SUMMARY.

1. The great number of deaths from appendicitis in the United States is appalling and is in a large measure preventable.

2. A systematic effort should be made to educate the public in the importance of immediate medical attention in cases of acute abdominal pain.

3. The operation in appendicitis and especially in cases with peritonitis forms only a part of the treatment.

The Urobilin Problem.—Weltmann says that Muller's experiments cannot be taken as proof of the enterogenous origin of urobilin, since urobiligen is found regularly in the bile of swine. Consequently, the urobilinogen which appears in the urine of persons with the common bile duct obstructed, after ingestion of swine bile, is due to the urobilinogen content of the latter. He adds that urobilinogen is seldom found in the serum in liver disease with jaundice, but it is frequently found in pneumonia and other infections, with tumors, and in severe heart defects. The conditions responsible for the appearance of urobilin in the serum are the inability of the liver to destroy the urobilin that reaches it, and modification of the blood albumin, rendering it physically less capable of binding the urobilin.

HEREDITARY SYPHILIS AND ITS EYE AND EAR SYMPTOMS.*

By Samuel G. Dabney, Louisville.

Frequency: It is estimated that about four per cent of children in the whole population have inherited lues. In the negro population of St. Louis it was found in fifteen per cent; in the well-to-do it occurs in less than one per cent.

Mechanism of Transmission: It is agreed today that the disease is almost always, if not invariably, transmitted from the mother. Stokes, however (Modern Clinical Syphilology, 1926), states that occasionally one meets with clinical cases in which maternal transmission is to say the least obscure, and Chetwood (Urology and Syphilology, 1927), states that the disease may pass from father to child without infecting the mother.

Period of Inoculability: In the beginning of my professional life, a case of syphilis in the nose in a married woman was referred to me by a very eminent surgeon and practitioner. The husband claimed, perhaps untruthfully, that he had syphilis five years before his marriage. On mentioning this to the doctor who had sent me the patient, he said, "If the story is true, she did not get it from him, whether he had been well treated or not." In the main this view is still held, namely, that the inoculability of syphilis becomes much less three or four years after infection, and is only remotely possible after five years. This was the teaching of the older school. But Strandberg has recently studied 250 marriages in which one partner was syphilitic, and found that the disease was transmitted five years or more after infection in twenty per cent of cases. Notwithstanding these latest figures I have been strongly impressed with the belief that it is rare for the disease to be transmitted four years or more after infection. Many patients have come to me with teritiary lues of the nervous system manifested by symptoms in the eye and with teritiary syphilis of the nose and throat whose family I knew to be healthy. These patients invariably gave a history of insufficient treatment, the majority of them of most neglected treatment, but had not married for a number of years after becoming diseased.

Twins, of which one was syphilitic and the other health, both clinically and serologically, are reported by a number of authors.

Wassermann Test: The value of this test in inherited syphilis is not universally agreed upon. Stokes states that it is often negative at birth, but becomes strongly positive in a few weeks or months (100 per cent at this time); and in the later forms, occuring from 3 to 30 years of age, it is very generally positive in the first decade and then becomes more and more frequently negative. Cannon, on the other hand, in 202 cases of inherited syphilis found the Wassermann positive in all but two, notwithstanding the fact that the average age at which symptoms appeared was between the tenth and fifteenth year. St. Clair Thompson, easily the most eminent English speaking laryngologist, says in regard to snuffles: "The Wassermann test may be negative or faintly positive." This might be attributed to the early age—usually less than six weeks—of the appearance of the disease, but he uses the same words in regard to manifestations in the pharynx and larynx, which occur later. Lucas (Modern Pediatrics, 1927), evidently referring to the infantile symptoms, says: "Family history plays a determining part in the diagnosis as the Wassermann reaction is seldom positive in the first few months of life, and almost never in the new-born." Arnold Knapp and Fuchs both state that in parenchymatous keratitis the reaction is almost always positive. Foster Moore does not mention it.

Infectiousness of Inherited Syphilis: I have found little on this subject, though Stokes says: "the infant in florid eruption is a source of infection and should be handled accordingly, though some observers feel that the risk to ordinary contacts is small. The early installation of arsphenamine treatment soon does away with it."

The Transmission of Syphilis to the Third Generation is regarded as a negligible rarity. The facts bearing upon this question are: that the liability of transmitting the disease diminishes with the lapse of time, that inherited syphilis not a permanent protection against the acquired disease, and that parents with inherited syphilis do have healthy children. It is true, however, that the offspring of the subjects of congenital lues are usually more delicate and have a greater mortality than other children.

Eearly and Late Symptoms of Inherited Syphilis: Few cases show evidence of syphilis at birth, and the mortality among these few is very high. Symptoms are usually manifest, according to Lucas, between the third and eighth month (snuffles earlier, 1-6 weeks); but Powers, in the analysis of 158 cases, found in 146 symptoms manifest in the first three months of life. "These early symptoms are generally classed as secondary. They differ, however, from the secondary symptoms of acquired lues in their usually greater severity, more strongly Wassermann (after the third month) and far greater mortality even under vigorous treatment." (Lucas' Pediatries) Besides the skin eruptions, mucous patches and marasmus, often but not invariably present, we have at this time often snuffles in the first few weeks and rarely iritis about the fifth month. With the subsidence of these early symptoms at about the close of the first or possibly the second year, the disease generally seems to disappear for a period of years, perhaps four or five, perhays fifteen and rarely more. There is reason to believe that these late symptoms, such as keratitis, may occur without having been preceded by earlier manifestations. Fuchs is sure of this, and my own experience (a drop in the bucket compared to his) leads me to the same conclusion. Many times I have questioned the mother, who brought me her seven or eight year old child with keratitis, as to the child's health in infancy, and many times I have been assured that it was a normal healthy infant and child until the eye trouble came. Some authorities claim that under these conditions the syphilis was inherited from parents in whom the disease was latent, while the infantile forms are derived from parents with early active syphilis.

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*Read before the Louisville Medico-Chirurgical Society,

Eye Symptoms: We will consider these in order of their frequency, mentioning some other symptoms likely to be present. Interstitial keratitis is easily the symptom most often complained of and of most diagnostic importance. It occurs in rather over one-third of all cases and in about ninety per cent it is caused by inherited lues, the balance being acquired lues (about three per cent) and tuberculosis. It affects both eyes; though the interval between them may be a year or more, it is commonly only a month or two. The disease will not be prevented, nor as a rule will involvement of the other eye be prevented, by treatment. Treatment, however, does lessen the danger or relapses and of complications and perhaps lessens the duration. This is variable; it is generally stated to be from 6 to 18 months, but mild cases may be quicker. It generally occurs between the sixth and sixteenth year, but sometimes sooner and it is said to occur rarely in the late 30's. It begins either at the margin or near the center of the cornea and spreads until it usually, though not invariably, involves the whole cornea. Deep-seated blood vessels run into the opacity, in some cases causing the so-called "salmon patch." Iritis is nearly always present and often it is hard to dilate the pupil with atropine. Fuchs thinks this is due to lessened absorption through the cornea. The disease may come like a clap of thunder from a cloudless sky, in an apparently healthy child; more frequently there are other symptoms to be presently studied. In the beginning there is pain, not usually intense, and sensitiveness to light. The vision grows worse and after a few weeks it may be reduced to light perception. I have seen children feeling with their hands on the wall to find the door, and yet these children finally went on with their school work without trouble. Of the attendant symptoms, the teeth are the most frequent and often the most characteristic. Typical Hutchinson teeth—rounded, peg-shaped, notched upper central incisors—occur in a little over thirty per cent of cases. Many observers consider them pathognomic. Foster Moore believes that where there are Hutchinson teeth there will invariably be keratitis sooner or later. I think this is a mistake. There is reason to think that the formation of these teeth cannot be prevented by treatment. Stokes shows an excellent x-ray picture of such unerupted teeth in a child five years old, whose syphilis had been recognized at the fourth month. Vigorous treatment had been used, the Wassermann reversed, and the health made good; but when the teeth came, they were typical Hutchinsonian. Other abnormalities of the teeth, not so characteristic but suggestive, are rounded, peg-shaped incisors without the notch, and dome-shaped molars. Other symptoms to be looked for are flattened jaws, sunken nose, rhagades about the mouth, and inflamed joints. The Wassermann has already been considered. Choroditis accompanies or follows keratitis and may occur without it. It is likely to affect the anterior portion of the choroid and can be diagnosed only with the ophthalmoscope. A diffuse chorio-retinitis, in severe cases accompanied by atrophy of the optic nerve, is not very rare. Iritis independent of keratitis occurs rarely and is usually early, about the fifth month.

Paralysis of the ocular muscles in inherited lues is very unusual. Recently a four year old child was referred to me by another oculist. There was complete motor oculi paralysis on the left side with marked optic neuritis on the same side. The mother gave a history of three miscarriages before the birth of this child. I advised a Wassermann and vigorous specific treatment. The mother's Wassermann was four plus. The case terminated fatally in a few weeks in spite of vigorous treatment.

The prognosis of the eye symptoms is generally favorable. Latest statistics of 320 cases of interstitial keratitis, thoroughly treated, showed something over twenty per cent were left handicapped in their vision. I would not think in private practice that this proportion would be so large. In choroiditis, and especially in optic atrophy, the prognosis must be guarded. The disease may be arrested. In iritis the outcome is generally good.

Ear Symptoms: The most frequent ear symptom is an affection of the auditory nerve, occurring at about the age of puberty and leading to complete deafness. The prognosis is bad. Stokes states that this occurs in about ten per cent of cases of inherited lues, but I think he must include milder and less typical cases.

The combination of interstitial keratitis, Hutchinson teeth, and absolute nerve deafness is skown as the Hutchinson Triad. Such cases are nowadays not common, but I had the opportunity last session to present one before the class.

Nose Symptoms: The commonest manifestations in the nose is snuffles which has already been mentioned. It is distinguished from other forms of obstruction in infants, such as congenital adenoid (rare), by the nasal discharge.

Treatment will, I hope, be brought out in the discussion. I believe it is best carried out by the syphilographer in conjunction with the oculist or aurist. In the early severe infantile forms intra-muscular injections of arsphenaine and mercury, as advised by Fordyce, seems the best; while in the later forms stress is laid chiefly upon the prolonged vigorous use of mercury (many still preferring inunctions) with the arsphenamine injections, and iodides given internally. Tonics and other attention to the general health are often demanded.

SUMMARY.

(1) Inherited syphilis is transmitted from the mother to child.

(2) The earlier in life symptoms appear the more fatal the disease.

(3) Symptoms can be divided into those of the first eighteen months and those after the fifth year; the former the more fatal, the latter more obstinate.

(4) The later symptoms may appear without being preceded by the earlier.

(5) Among the later symptoms, interstitial keratitis, occurring in about one-third of all cases, and Hutchinson teeth in about the same proportion are characteristic.

(6) It is probable that neither of these symptoms can be prevented by treatment. They often, but not always, are found associated.

(7) Even with the best treatment interstitial keratitis is followed in about twenty per cent of cases by a more or less serious impairment of sight.

(8) Further investigation seems desirable as regards the Wassermann test. It appears from present investigations that: (a) the test is negative at birth, (b) becomes strongly positive in a period varying from several weeks to several months, (c) in the presence of symptoms is positive in the great majority of cases for the first decade of life, and then (d) becomes more and more often negative.

(9) An affection of the auditory nerve, generally occurring at the age of puberty, is far less common then keratitis, but far more serious. Even with the best treatment in well marked cases the deafness usually becomes profound.

(10) Snuffles is among the very early symptoms, usually the first to the sixth week.

DISCUSSION.

J. Garland Sherrill: I am delighted to have heard this paper because of the clarity and brevity of expression which Dr. Dabney incorporated in it. We are limited in our discússion to the eye and ear symptoms. We are all aware, however, of certain other symptoms noted in congenital syphilis, such as clubbed fingers and cardiac lesions which so frequently cripple these children.

What the essayist says about the syphilitic child being delicate is remarkably true and we should always bear this in mind in our observation of these children and inspect them frequently. This is a very interesting subject, and the trend of medical thought has changed more or less in recent years in regard to syphilis being transmitted from parents to offspring, the significance of the Wassermann test in congenital syphilis, the treatment proposed for the disease, etc. Congenital syphilis intensively treated sometimes responds rather well. My observation leads to the conclusion that infants with syphilis respond about as favorably as adults to medication with the arsenical preparations and mercury, but stand mercury better than arsenic.

Morris Flexner: There are two or three points upon which I would like to dwell. Enlargement of the epitroclear glands is an important diagnostic sign of congenital syphilis. It should always be borne in mind in our examination of infants suspected of having congenital syphilis.

Some observers base their diagnosis of congenital syphilis on the presence of pinching of the finger nails with shiny soles and palms. Quite recently I risked a diagnosis of congenital lues on the basis of very shiny soles alone, and this was confirmed by the Wassermann test which was positive.

Undoubtedly congenital syphilis is a blood stream infection involving every part of the body and the spirochaetes must be present in large numbers and some change takes place in the tissues which favors spread of the infection. I wish Dr. Dabney would tell us in closing just how they happen to lie dormant so long in the cornea.

The Hutchinson'an teeth are always interesting. Medical students frequently think this anomaly occurs in the first set of teeth, but the fact is they always occur in the second set.

As regards treatment: This is largely a matter of individual preference. At the childrens hospital congenital syphilis is treated by intramuscular injections of sulpharsphenamin which causes prompt subsidence of all dermatological l sions, then the administration of mercury by mouth in the of gray powder 1-3 grain three times daily, or by inunction.

One feature that makes congenital syphilis difficult to handle is that it so frequently occurs in ignorant people and it is sometimes impossible to get the child to return for treatment. After the clinical symptoms have disappeared the child does not return for subsequent doses of arsphenamin. Wonderful results are secured when the child can be induced to return for the full course of treatment. In many instances the patient does not return until something else happens later in life. The child with congenital syphilis should be treated at least two or three times a year for a period of three years. If this plan is followed I think we may reasonably expect the disease to be arrested. The Wassermann test along with clinical improvement are the only indices of cure.

Philip F. Barbour: Dr. Dabney has given s a splendid resume of the eye and ear symptoms of congenital syphilis. I think all medical students should be taught that the Wassermann reaction fails quite frequently in cases of congenital syphilis. I have had a number of cases brought to me by recent graduates where children had snuffles, condylomata, keratitis, etc., due to congenital syphilis, but the diagnosis was not made because the Wassermann was negative. It is well known that the Wassermann reaction is not always positive in congenital syphilis. We must not overlook the clinical signs in these cases, which, after all, are often of more importance than the Wassermann test. We must consider the clinical symptoms and treat the patient accordingly.

As to true Hutchinson teeth: Dr. Flexner is correct that medical students often look at a baby's teeth and pronounce them Hutchinsonian in character. It is worth remembering that true Hutchinson teeth are the permanent teeth. I am rather impressed with the fact that rarely have I seen true Hutchinson teeth in Louisville. I do not recall having seen such a case during the past year. While not typically Hutchinsonian, I have often seen teeth which seemed to be shrunken at the tips and broadest at the bases. I believe there are characteristic of congenital syphilis. I have seen many children whose upper and lower incisors were distinctly saw-toothed and roughened. In the course of a year or two they become smooth and normal. I do not believe this peculiarity is due to congenital syphilis. The most profound and absolute deafness that I have ever seen in children was due to congenital syphilis.

There is one nose symptom Dr. Dabney did not mention, i. e., a peculiar nasal cry. It is totally unlike other types of crying, there being a definite nasal quality. This type of cry occurs most frequently when the child is suddenly awakened from a sound sleep, and is indicative of congenital syphilis.

James W. Bruce: I have enjoyed Dr. Dabney's paper immensely. During the first two months of life the Wassermann reaction is very unreliable. If it is positive the child probably has syphilis, but a negative reaction does not mean that he may not have the disease. After the second month the Wassermann is a very good guide.

Dr. Dabney's remark about known syphilitic parents being able to produce a child free from syphilis in later life is in line with Holt's observation that subsequent pregnancies give less and less evidence of syphilis in the offspring. A woman may become contaminated with syphilis and the first two or three pregnancies will result in miscarriage. The next time she may give birth to a syphilitic baby, and then the infection becomes less and less until finally she may give birth to a child which is practically normal. However, I do not recall having seen a healthy child born to a mother with acquired syphilis.

The result of treatment of babies with congenital syphilis have been disappointing to me in that very frequently it is difficult or impossible to secure a negative Wasserman reaction. We can produce a symptomatic cure very easily by the line of treatment mentioned by Dr. Flexner, that is one of the arsenical preparations followed by mercury. I have never given bismuth, but it has been used with success.

I would like to add a few more physical signs in congenital syphilis during the first year of life. One is a moderate degree of hydrocephalus. I have seen three cases in the last few years in which children with congenital syphilis had mild degrees of hydrocephalus. Another symptom is early decay of the teeth of the first dentition, not Hutchinsonian teeth as it is recognized they occur in the second dentition. I mean early caries especially of the incisor teeth of first dentition.

We have not heard enough about the results of treatment of syphilis in pregnant women and syphilis in their offspring. If it would not be going too far afield, I would like to mention briefly a case of that kind I had the privilege of seeing in consultation. A woman developed a decided rash during the second month of her pregnancy. It was diagnosed as syphilitic by a competent syphililogist and the patient was treated intensely with arsphenamin and mercury. She gave birth to an apparently normal child at term, the first born baby, and the child for eighteen months seemed to be prefectly healthy. The first evidence of syphilis appeared when the child was eighteen months old. It then developed convulsions followed by hemiplegia. Spinal puncture showed a large increase in the cellular elements and the spinal fluid was four plus positive by the Wassermann test. I had the opportunity of observing this child with the family doctor over a period of several years. He gave intravenous injections of neoarsphenamin with mercury internally for the first year and the symptoms subsided completely within a few weeks, but after four years the Wassermann reaction was still strongly positive.

John W. Price: I enjoyed Dr. Dabney's paper very much. I cannot add anything of specific a nature to the clinical diagnosis of congenital syphilis, but there arises in my memory the fact that syphilitic children wet the bed for a longer period than children who are healty, and I believe that is a suggestive symptom.

I would like to ask why it is that the spirochete seems to choose the second, third and eighth cranial nerves so frequently for its field of operation. I believe these are the three cranial nerves that are most frequently involved, and in my reading no satisfactory explanation has been found for the fact.

Samuel G. Dabney (in closing): The paper included discussion only of the eye and ear symptoms of congenital syphilis, no reference being made to the acquired type. Involvement of the cranial nerves in congenital syphilis is rather unusual. The second nerve is sometimes affected with the production of optic neuritis. Involvement of the third nerve is rare but is serious when it occurs. Stokes claims that the eighth cranial nerve is affected in about 10 per cent of cases of congenital syphilis. I think that is a larger percentage than stated by most observers. I have seen a few cases of profound deafness the result of congenital syphilis. I know of no satisfactory explanation as to why the spirochaete attacks these three cranial nerves in preference to others.

As to the presence of the spirochaete in interstitial keratitis. Fuchs in his fairly recent book states that spirochaetes are not found in the cornea. DeSchweinitz, however, quotes three authorities who have found spirochaetes.

Dr. Barbour emphasized one of the most practical points in the paper, that is the value of the Wassermann reaction. Dr. Bruce also spoke of this. Both Dr. Barbour and Dr. Bruce omitted the most important feature, i. e., that in congenital syphilis the Wassermann reaction is probably negative at first as a rule, later becoming positive after the lapse of weeks or months, then again becomes negative at the age of ten or twelve years. Further investigation is desirable. It is not uncommon to have eye symptoms, such as interstitial keratitis, occurring in children after the age of ten years. Cannon recently presented a very excellent resume of 202 cases and claimed the average age at which the symptoms became manifest was between ten and fifteen years.

The other point mentioned by Dr. Barbour and also Dr. Bruce not included in the paper, that is suggestive teeth, but not typical Hutchinsonian teeth, is of some importance in connection with the diagnosis. In the paper I spoke only of Hutchinsonian teeth which are familiar to all f you. They are almost pathognomic and are found in about 34 per cent of inherited lues.

BOOK REVIEWS

AFFECTIONS OF THE STOMACH. By Burrill B. Crohn, M. D., Associate Attending Physician, to the Mt. Sinai Hospital, New York City. Octavo of 902 pages with 361 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $10.00 net.

Dr. Crohn's new book is a modern discussion of gastric diseases and related conditions with gastric symptoms. It includes data secured at the bedside, in the chemical and pathologic laboratories, as well as at the experiment table of the physiologist. The book covers the field completely from the fundamentals of anatomy and physiology, on through test-meals (he prefers fractional test-meals), radiography, history-taking, physical examination, general symptomatology, diagnosis and treatment. The troublesome problems of diagnosis are considerably clarified by Dr. Crohn's thorough discussion of them. He defines each disease, sets down the symptoms in impressive language, clearly explains the etiology, pathology, physical signs, differential diagnosis. The 70 skiagrams are remarkable for their instructiveness, due to the specially drawn "silhouette" interpretations which lift from the x-ray just that part which is of clinical value. Numerous case histories also aid in the diagnosis. Treatment is outlined at length. For instance, the treatment of gastroptosis is first discussed in a general way, then the divisions are taken up separately—diet in terms of quantities; gymnastic exercises, supports and corsets, actual prescriptions and surgical technic in detail, beautifully and clearly illustrated.

WOMAN'S AUXILIARY NOTES

Taylor County Organizes.

Mrs. Raymond Evans, Secretary of the Woman's Auxiliary of the Kentucky Medical Association, organized the Taylor County Auxiliary December 5th, 1927. The officers elected were:

Mrs. W. Burr Atkinson, President.
Mrs. Merlin Wood, Vice-President.
Mrs. J. P. Gozder, Secretary and Treasurer.
Mrs. J. S. White, Historian.

A number of the wives and daughters of the local physicians were present and entered enthusiastically into the plans and ideals of an organization that would form a strong power for educational propaganda and the promotion of health projects in the county, as an aid to the doctors.

One of the "specials" taken up by this Auxiliary, will be the collecting and the preserving of data and records of the work of the pioneer physicians. Taylor County, being so long remote from railway and their methods of communication with the outside world, tne history of her medical work is the story of sacrifice and unselfish service, of those heroes of the Saddle Bags, the country doctor. Far from specialists, hospitals, and trained nurses, they developed an independence and accuracy that made them keen diagnosticians. Many of the men now practicing in the country are the sons and grandsons of a long line of doctors, and continue as their fathers were, the beloved "family physician."

ANN M. WHITE, Historian.

120 New Members.

The luncheon meeting of the Woman's Auxiliary, Jefferson County Medical Society, held December 6th at the Brown Hotel, was a delightful occasion at which Mrs. George A. Hendon, Chairman of the Membership Committee, reported 120 new members as a result of the recent membership drive. Members of Mrs. Hendon's committee included: Mrs. Curt Krieger, Mrs. J. T. Crice, Mrs. C. G. Arnold, Mrs. E. L. Dravo, Mrs. Duffy Hancock, Mrs. S. W. Bates, Mrs. L. W. Neblett, Mrs. I. A. Arnold, Mrs. J. K. Freeman, Mrs. I. T. Fugate, Mrs. Paul Keith, Mrs Emmett Horine. For securing the largest number of new members, Mrs. J. K. Freeman, won the prize, a beautiful shoulder bouquet in rose and white.

A musical program prepared by Mrs. I. A. Arnold was greatly enjoyed.

The address on, "The Problems of the Pre-School Child," made by Doctor Frank J. O'Brien, held the close attention of the audience.

The President, Mrs. Hugh N Leavell, introduced Mrs. Irvin Abell, the Treasurer of our National body, Woman's Auxiliary, American Medical Association; Mrs. A. T. McCormack, President, Woman's Auxiliary, Southern Medical Association; Mrs. S. W. Bates, Councilor of the Fifth District, and several of the members present who responded with short speeches. A guest of honor was Mrs. J. W. Sams, Crestwood, President of the Oldham County Woman's Auxiliary, and Corresponding Secretary of the Southern Auxiliary, who made an attractive speech, describing her introduction to Auxiliary work.

Medical History.

An urgent appeal is made by the Woman's Auxiliary of the Kentucky State Medical Association for every county to collect and send to the Secretary, Mrs. Raymond M. Evans, Puritan Apartments, Louisville, all data in regard to the pioneer work of physicians in your respective sections. A history of the medical profession of Kentucky is to be compiled by the Medical Association, and such would be impossible without your earnest effort and coperation.

Honor Doctor Sims.

Kentucky members of the Auxiliary will be interested to know that the Woman's Auxiliary to the South Carolina Medical Association has already raised $1,540.00 toward a fund of $5,000 for the purpose of erecting a monument to Doctor James Marion Sims, the famous surgeon of South Carolina.

Doctor Sims invented several surgical instruments, among them the speculum bearing his name, which revolutionized the practice of gynecology. He, also, performed the first successful club-foot operation, straightened cross eyes for the first time in the world, organized the Woman's Hospital of New York and was called to Europe to perform a surgical operation on the Empress Eugenia, among other notable achievements of his eventful life.

The President of the South Carolina Auxiliary is Mrs. H. M. Stucky of Sumter, who moved to South Carolina twentyfive years ago from Kentucky, her native State.

All Kentuckians will join in hearty congratulations and good wishes for success in this excellent work of Mrs. Stucky and our other Auxiliary friends in South Carolina.

Mrs. J. T. Reddick, President Woman's Auxiliary for McCracken County, has appointed Mrs. C. P. Burnett, Paducah, Hygeia Chairman.

IN MEMORIAM

William Henderson Kelly.

Death has removed another of the group of Covington's elder physicians who have made the medical history of Northern Kentucky.

Doctor William Henderson Kelly, one of the leading physicians of Covington, died on September 18, 1927.

Born in Bourbon County, Kentucky, on August 31st, 1858, Dr. Kelly received his preparatory education in the Yerkes School in Paris and at the age of 20 graduated from Centre College.

His uncle, Dr. William W. Henderson, a prominent and most able physician of Covington, guided Dr. Kelly's first steps in the field of medical training and in conformance with the regulations in vogue at that time, later assumed the obligations of a preceptor, when his nephew matriculated in the Medical College of Ohio. After his graduation in 1881, Dr. Kelly served as interne in the Good Samaritan Hospital and as resident physician in the private Hospital for Women of Dr. Thadeus A. Reamy. Two years of intensive work in the hospitals of Europe (Goettingen, Berlin, Vienna, London) completed his preparations for the practice of medicine. Establishing himself in the office of his uncle, who had passed away, Dr. Kelly for a short time engaged in surgical practice, but, although well qualified for this work and signally successful in its pursuit he soon discovered that in the direction of internal medicine lay both his preference and his forte.

And indeed the wisdom of his choice was fully attested by the outstanding success which attended his efforts in this branch of medicine. A rapidly enlarging clientele recognized Dr. Kelly's superior qualifications; his professional confreres on the southern shore of the Ohio River soon learned to value his diagnostic acumen and frequently called him in consultation in difficult cases. Dr. Kelly kept assiduously abreast of the advances in medicine by devoting much of his spare time to the study of the literature. His thorough training in the fundamentals enabled him to win now the chaff from the wheat in his reading. As an example of his progressive spirit and sound judgment we may cite that he was the first physician in the region of the United States to employ diphtheria antitoxin.

The high esteem in which Dr. Kelly was held by his patients and his colleagues, was well deserved.

Dr. Kelly accepted the care of his patients as an individual responsibility and took a keen human interest in their welfare. Between Dr. Kelly and his patients existed that personal relationship which at once is the biggest factor in the art of medicine and the key to effective therapeutic service. Dr. Kelly was a public-spirited citizen, honorable and trustworthy. His daily life was worthy of emulation by all of us.

Your committee recommends that the following resolutions be passed by the Campbell and Kenton Counties Medical Society:

WHEREAS, in the death of Doctor William Henderson Kelly the medical profession in general and the physicians of Northern Kentucky in particular have lost an honored colleague and the community at large an able counsellor and a loyal advisor; be it

Resoved, That the Campbell and Kenton Counties Medical Society testify to its high respect for Dr. Kelly's rugged character; that as a memorial to him this statement of the Society's appreciation be spread upon its minutes; that it be printed in its official journal; that a copy of this resolution and an expression of the Society's profound sympathy with his family in their bereavement be communicated to Mrs. Anna Henshaw Kelly, his widow, and to Dr. Thomas Henshaw Kelly, his son.

L. C. HAFER,
KARL W. ZWICK,
J. D. NORTHCUTT,
Committee on Resolution.

BOOK REVIEWS

INFECTIOUS DISEASES AND ASEPTIC NURSING TECHNIQUE. A Hand-Book for Nurses. By Dennett L. Richardson, M. D., Superintendent of the Providence City Hospital, Providence, R. I. 12mo of 182 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $1.50 net.

Dr. Richardson's concise textbook stands out in sharp relief. It records the instruction given by Dr. Richardson for fifteen years at the Providence (R. I.) City Hospital, and furnishes a practical course for general use in schools of nursing and in graduate practice.

Each disease receives a discussion commensurate with its importance or frequency. First, Dr. Richardson defines the disease, then he gives the etiology, mortality, incubation period, symptoms and signs, complications, prognosis, treatment, and explicit information on how infectious disease are transmitted, and how this transmission can be prevented.

A TEXT-BOOK OF PATHOLOGY. By Alfred Stengel, M. D., Sc. D., Professor of Medicine, University of Pennsylvania, and Herbert Fox, M. D., Professor of Comparative Pathology, and Director of the Pepper Laboratory of Clinical Medicine, University of Pennsylvania. Eighth Edition, reset. Octavo of 1138 pages with 552 text illustrations, many in colors, and 18 colored plates. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $10.00 net.

The new (8th) edition is offered after a most thorough revision, necessitating a complete resetting of the book. By using a larger page it has been possible to include all new material and still keep the work of convenient size.

The chief feature of the book is that it was written by men who are both clinicians and teachers, and who, therefore, recognize the needs of practitioners and students. For the practitioner this means a practical working book on pathology; for the student, it means a practical text-book in which he studies actual pathologic conditions—not highly scientific views or opinions.

The subject is presented under two general headings—General Pathology and Special Pathology. Under General Pathology are taken up etiology of disease in general, disorders of nutrition and metabolism, disturbances of the circulation of the blood, retrogressive processes, inflammation and regeneration, progressive tissue changes, teratology, bacteria, diseases due to bacteria, parasites and diseases caused by them, and the methods of transmission of communicable diseases. Under special pathology are discussed diseases of the various organs and systems.

The value of a text-book is considerably increased by numerous and instructive illustrations. For this reason Drs. Stengel and Fox have been unsparing of pictures. They have included 552 of them—many in color.

AMERICAN MEDICINE AND THE PEOPLE'S HEALTH. By Harry H. Moore, Public Health Economist, United States Public Health Service; Author of "Public Health in the United States," etc. With an introduction by the Committee of Five for promotion of study of the Economic Factors affecting the Organization of Medicine.

D. Appleton and Company, New and London. Price, $5.00.

Why is adequate, scientific, medical service available, in the main, only to the poor and rich? What should be done regarding the universal tendency of physicians to abandon rural districts in favor of cities?

What is the explanation of the fact that in one of the largest cities in the United States a majority of tonsillectomies are charity cases? Why were there 100,000 cases of smallpox in the United States in 1921, when this is a preventable disease? For what reason are approximately 30 per cent of all confinements attended by midwives, a large proportion of them illiterate and superstitious?

Why is it that only 307 of the 2,850 rural counties of the United States maintain health departments with whole-time health officers? Has the rapid growth of clinics since 1900 been salutary? *Should the functions of the State in the field of medicine be curtailed or extended?*

These are only a few of a large number of problems regarding medical service that are assuming an increasingly important position in current discussion among both physicians and laymen.

This book aims to set forth without bias or prejudice, in organized, logical form, the chief facts now available in the present rapidly changing situation, and to present the economic, sociological, and political aspects of those facts without which an understanding of them is impossible.

LIPPINCOTT'S POCKET FORMULARY. By G. E. Rehberger, M. D., author of Lippincott's Quick Reference Book. J. B. Lippincott Company, Publishers.

This little pocket therapeutics has been prepared in order to provide the practitioner with a conveniently sized ready reference manual, in which information is more readily found and is more accurate than can be obtained by an appeal to the unaided memory. In other words, it is intended to complement and supplement his medical education—to serve as a handy repository of the essentials of modern therapeutic knowledge, without superfluous verbiage.

Section I presents the treatment of the various diseases and symptoms, general and special, in alphabetical order. Drug names and composition conform to the last Pharmacopœal and National Formulary revisions.

Section II lists (1) drugs and preparations of the U. S. P. X, with their solubilities, dosage, and uses; (2) drugs and preparations of the National Formulary; and (3) new and nonofficial remedies.

Section III contains miscellaneous information, including tables of relative weights and measures in the apothecaries' and metric systems, tables of heights and weights, a list of incompatibilities, urinalysis, etc.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Harrison: The Harrison County Medical Society held their annual meeting and dinner at Hotel Harrison, December 5, 1927. Members and guests present were: N. W. Moore, J. P. Wyles, J. S. Martin Blount, R. W. Wood, J. M. Rees, M. McDowell, J. P. Chamberlain, Midden, J. E. Wells, W. B. Moore, E. S. McIlwain, C. L. Swinford, Carr, P. E. Blackerby of Louisville, C. W. Shaw and Caldwell of Campbell County, H. C. Clark and O. W. Brown of Pendleton County.

Officers elected for 1928 were: President, J. P. Wyles; Vice-President, J. A. Orr, J. M. Rees; Secretary-Treasurer, W. B. Moore; Censor, M. McDowell; Delegate to State meeting, W. B. Moore; Alternate, J. P. Wyles.

After election of officers, informal talks were made by P. E. Blackerby, C. W. Shaw, Dr. Caldwell, Dr. Brown and H. C. Clark. Our society expressed great pleasure in having the gentlemen with us, and hope they will come again.

W. B. MOORE, Secretary.

Carlisle: At the regular meeting of the Carlisle County Medical Society the following program was given:

Colds—R. K. Galloway.
Discussion—H. T. Crouch.
Chronic Myocarditis—C. W. Payne.
Discussion—R. C. Burrow.
Achylia Gastrica—H. A. Gilliam.
Discussion—J. F. Dunn.

Adair, Green, Taylor: The annual meeting of the Adair, Green and Taylor joint society meeting was held in Campbellsville on December 8, with a large attendance. A magnificent banquet was spread in the dormatory of Campbellsville College. Special guests were Drs. E. S. Allen and A. L. Bass of Louisville. Dr. Bass delivered an address, "The Value of the Ophthalmascope." Dr. Allen read an essay, "Malignancy." Both were very practical and interesting papers. The physicians of Marian county joined us in the meeting.

Because of the condition of the roads in winter, no joint meetings will be held in the first three months of the year, after which the regular schedule will be followed with a meeting in each county each quarter. In June it is planned to hold an all day session, to which speakers of note will be invited to address the society.

W. B. ATKINSON, Secretary.

Carter: The Carter County Medical Society met on call reunion Tuesday, December 13, 1927, at which meeting the following officers were elected for 1928:

W. A. Horton, President.

T. T. Bays, Vice-President.

G. B. O'Roark, Secretary and Treasurer.

H. T. Sparks, Delegate.

W. A. Horton, Alternate.

G. B. O'ROARK, Secretary.

Scott: Scott County Medical Society met at the Department of Health Office for their monthly meeting, with Dr. L. F. Heath presiding, and the following members and officers present: H. H. Roberts, J. W. Baird, William Salen, P. H. Crutchfield, H. V. Johnson, S. S. Amerson and E. A. Anderson. The minutes of the previous meeting read and approved.

New business, a committee consisting of Drs. W. S. Allphin and H. V. Johnson was appointed to consider the plain of having a free clinic for the indigent people of Georgetown and Scott County, once or twice a month, to be conducted by two doctors each time, taking the list alphabetically, and report next meeting.

After which a paper was read by Dr. A. Stewart, on Infant Feeding, discussed by Drs. H. H. Roberts, H. V. Johnson and others.

This was a very good meeting, the doctors are becoming more interested in the medical meetings.

Following, was the election of officers for the year, 1928: Dr. H. H. Roberts, President; Dr. J. W. Baird, Vice-President; Dr. A. Stewart, Secretary and Treasurer; Dr. E. A. Anderson, Delegate; Dr. H. V. Johnson, Alternate; Dr. C. T. Lancaster, William Salen, and W. S. Allphin, Censors.

No further business, meeting adjourned to meet the first Thursday in January.

A. STEWART, Secretary.

Whitley: At the annual meeting of Whitley County Medical Society the following officers were elected for the ensuing year:

President—L. B. Croley, Williamsburg.

Secretary—C. A. Moss, Williamsburg.

Board Censors—Geo. Corum, Corbin; A. A. Richardson, Williamsburg, J. E. Siler, Lot.

Delegate—C. A. Moss.

Alternate—P. W. Adkins, Williamsburg.

C. A. MOSS, Secretary.

Henderson: The regular annual business meeting of Henderson County Medical Society was held in the office of Drs. Griffin and White at 8 p. m., December 12, 1927.

Meeting called to order by the president, Dr. Silas Griffin. There were present: Drs. G. W. White, J. O. Strother, W. V. Neel, F. G. Jones, R. E. Smith, J. U. Ridley, F. C. Campbell, Peyton Ligon, Silas Griffin. The following named were elected officers to serve for the year 1928:

President—G. F. Jones.
Vice-President—G. W. White.
Secretary-Treasurer—Peyton Ligon.
Delegate—Silas Griffin.
Alternate—J. O. Strother.
Censor—J. U. Ridley.

The application for membership of Dr. F. C. Campbell, all-time health officer for this county, was received, and upon motion he was elected a member.

PEYTON LIGON, Secretary.

NEWS ITEMS

LISTER'S DISTRIBUTORS

In this issue appears a two page colored insert of Lister Bros., Inc., of New York City. For the convenience of readers, a list of their distributors in the field covered by this Journal is herewith given:

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Caneyville, Ky.—Ray Montgomery, Druggist.

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Lexington, Ky.—R. Lee Cassell, Druggist; Hubbard & Curry, Inc.; Lee E. Eiler.

Louisville, Ky.—Jones Apothecary, Francis Bldg., Mrs. L. Mannheimer, 2926 Virginia Ave., Newman Drug Company, 4th & Chestnut.

Newport, Ky.—W. J. Wetzel, Grocer.

Treatment of Typhus.—Modinos admits that Proteus X is not involved in the causation of typhus, but the fact that it is agglutinated by typhus serum suggested that it might serve for vaccine therapy. His experience in twelve cases of typhus with such a vaccine demonstrated, he says, that it certainly attenuated and shortened the disease, and warded off complications, even in the gravest cases.

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Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets.

Subscription Price, $5.00
Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., MARCH 1928 No. 3

EDITORIAL

THE CATHOLIC HOSPITAL ASSOCIATION MEETING

The 13th Annual Convention of the Catholi Hospital Association of the United States and Canda and the Second Annual Hospital Clinical Congress of North America will be held in the Cincinnati Music Hall, Cincinnati, Ohio, June 18 to 22nd, inclusive, 1928. The Fourth Annual Convention of the International Guild of Nurses will be held at the same time, in the same building, at night meetings.

This Convention and Congress will be one of the largest and most important hospital meetings of the year, and will comprise general scientific meetings, special clinics or demonstrations of hospital departments, and three hundred special commercial and educational exhibits. Outstanding authorities in medicine, surgery, pathology, nursing, dietetics and hospital administration, architecture and engineering will lecture and demonstrate in specially planned clinics representing the various departments of the modern hospital. A professional program of the highest interest and value is now being formulated, and all persons interested in medical and hospital service are cordially invited to attend. Further information may be obtained from John R. Hughes, M. D., Dean of the College of Hospital Administration, Marquette University, Milwaukee, Wisconsin, who is General Chairman of the Convention and Congress.

A POST GRADUATE COURSE

The State Board of Health has under consideration plans for a post graduate course of instruction to be available for the members of the State Medical Society, or in fact for any doctor in the state, who is ambitious to improve himself and keep abreast of the advances in medicine and surgery.

Several State Medical Associations have recently undertaken such work and it gives promise of becoming more and more widely popular in the future.

It is hoped that this post graduate course will prove even more attractive than the week of clinics, such as have been held heretofore, in connection with the graduating exercises of the University of Louisville.

On account of the large clinical material and the other facilities of Louisville, the course should be given in Louisville and at a time of the year most convenient for the doctors to attend, probably for two weeks in July.

Clinics in medicine, surgery and the specialties, with ward rounds would form part of the course, but opportunities will be offered for reviewing physicial diagnosis and learning the newest laboratory methods in blood sputum and urine analyses. Special attention will be paid to the technique of routine periodic health examination. The program can be made most flexible and adapted to the special desires of the doctors who are in attendance.

The medical department of the University of Louisville will be utilized to the fullest extent but we expect to draft men from over the state for special clinics or lectures. It should become more and more a clearing house for the medical profession of the state.

It is hoped that the various county societies will consider this proposition and make suggestions of topics, which in their judgement, would prove of general interest.

Dr. Philip F. Barbour, Louisville, has been appointed by the State Board to have a general supervision of the plans. He will welcome all suggestions, criticisms, knocks or boosts. He would appreciate any letters or comments from any doctor in the state, who would be interested in such a post graduate course.

THE RICHMOND PROGRAM

The program for the Richmond meeting of the State Medical Meeting is in the making, the committee consisting of Drs. W. Barnett Owen, chairman, J. H. Blackburn and A. T. McCormack.

It is the desire of the committee that the program provided should meet the needs of the greatest number of Kentucky doctors and for this reason the physicians throughout the state will be appealed to for papers. There are many physicians in all parts of Kentucky who are doing a large volume of high-class work, and it is the occasional contributor that we are now asking to help the profession of Kentucky as well as informing himself by presenting a paper or participating in the discusssion of some topic.

It is further desired that the program be as practical and utilitarian as possible, and in order to carry out this policy the specialists along different lines of work are being asked to contribute papers that have a bearing on the relations of their respective specialties to the man in general practice, rather than some highly specialized type of work that is of no practical value to the average Kentucky doctor.

In order to make the program as attractive as possible it is expected that at least one session of the meeting shall be taken up with a series of practical clinical lectures, each of some thirty minutes duration, and discussing some subject of distinctly every-day value.

May we make this a personal appeal to every physician who wishes to contribute to this program to write to the chairman, and to help in making this one of the most successful meetings in the history of the Kentucky State Medical Association.

SCIENTIFIC EDITORIAL

LIVER DIET IN PERNICIOUS ANAEMIA

Following the demonstration by Whipple[1] and his associates that diet containing liver exerted a striking effect on severe anaemias of long standing in dogs, Minot and Murphy[2] in 1926, published striking positive results achieved in the treatment of pernicious anaemia with a diet containing large amounts of liver in one form or another. Murphy, Monroe and Fitz[3] later during the year corroborated the improvement reported by these authors. During the same year Brill, Sappington and Barach[4] confirmed these results and Koessler, Maurer and Loughlin[5] and Elders[6] emphasized the importance of a diet in the treatment of this disease.

One year later Minot and Murphy[7] recorded further observations on the original patients who had continued to take the diet for from about one year to three years and added information concerning sixty other, making a total of one hundred and five. In almost all instances the response to feeding liver was prompt and as the red blood cells increased, the symptoms of anaemia diminished and vanished as the count approached normal. Symptomatic improvement is apt to be definite within ten days or when the reticulocytes have reached the peak of their rise. Thus, dyspnoea, oedema, palpitation, weakness, irritability, cramps in the muscles and the like decreased rapidly. Increase of appetite with corresponding improvement in the general sense of well being is rapid. The distressing tongue symptoms vanish rapidly. The symptoms referable to the neural system yield less completely and less readily to treatment than other accompanying conditions. However, occasional cases even with marked motor and sensory disturbances have shown striking and continuous improvement.

Our present knowledge of the apparent specific action of liver substance in pernicious anaemia suggest that intelligent diagnosis may fulfill a preventive function. Since in about ten per cent of the cases, pernicious anaemia is a familial disease, investigations of the relatives of a patient for achlorhydria and other signs that occur in the disease may lead to the institution of a suitable diet and prevention. Patients with little or no anaemia but with symptoms of a dyspeptic or intestinal nature, and whose general sense of well being has been much below normal, some of whom may have achlorhydria and colitis, may be suffering from early pernicious anaemia. Soreness of the tongue sometimes occurs intermittently for years before the disease is suspected. It is obvious that these cases may be benefited by a liver diet and that the time to treat a patient with pernicious anaemia is before anaemia is present or when neural symptoms first appear.

The immediate future has much to offer with regard to the etiology and treatment of pernicious anaemia. Cohn[8] and his collaborators have succeeded in fractioning liver extracts so as to secure potent concentrates and in the future one may be able to prescribe a small amount of a fraction, rather than large amounts, of liver. The ultimate effect of continuously feeding liver, or a raction thereof, together with an adequate diet, can be determined only in the future, but we do know that remissions are prompt and have continued for two years or more in all cases who have continued to take an effective amount of liver persistently and satisfactorily, and that they remain symptomatically well and their average blood corpuscle count has remained above 4,500,000 per cubic millimeter.

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LIVER DIET RECIPES

We are indebted to the *Good Housekeeping* magazine and the *A. M. A. Journal* for the following recipes.

Calves' Liver is considered the most desirable but beef and lamb are also excellent for food. Beef liver, because it is slightly tougher than the others, should be parboiled five minutes if sliced, twenty minutes if whole before proceeding with the cooking. To prepare, remove any membrane and wash in cold water. For a very delicate flavor, pour boiling water over the sliced liver and let stand for five minutes. Drain and prepare for cooking.

Sauteed Liver & Bacon. Cut the liver into slices one-fourth to one-third inch thick. Prepare the liver as directed above, coat lightly with corn meal. Saute over a low heat in a small amount of bacon fat. Turn frequently until brown on both sides. This requires about fifteen minutes. Two minutes before the liver is finished, broil crisp strips of bacon. Serve one slice with each piece of liver.

Boiled Liver. Wash the liver and place whole in a kettle of cold water adding one teaspoonful of salt to each quart of water. Bring slowly to the boiling point and simmer gently until tender. Celery leaves and onion may be added to the water if desired. This liver may be served sliced cold or used in many of the following recipes:

Baked Stuffed Tomatoes. Scoop out the center of a tomato and mix one-fourth cupful ground boiled liver. Add one tablespoonful chopped celery, one-fourth teaspoonful onion juice, one-eighth teaspoonful salt, and a speck of pepper. Stuff the mixture into the tomato Cover with buttered crumps and bake at 450° F. for twenty minutes or until the tomato is tender.

Stuffed Green Peppers. Boil one-half pound liver until tender. Put through a food grinder and add one cupful bread crumbs, one-fourth cupful finely chopped celery, one-eighth teaspoonful pepper, one-half teaspoonful salt and one egg well beaten. Mix well. Wash six peppers, cut in half lengthwise and remove the seeds. Fill the pepper shells with the liver mixture and place in a shallow baking dish. Surround with water. Bake at 450° F. for twenty minutes. Serves six.

Stuffed Baked Potatoes. Bake six medium-sized potatoes until soft. Cut a small piece from the side of each potato and scoop out the center. Mix the potato with two tablespoonsful of butter, about one-half teaspoonful salt, a speck of pepper and three or four tablespoonsful hot milk. Beat well. Return to potato shells leaving a hollow space in the top of each potato. Fill the hollow with finely ground well-seasoned cooked liver. Cover with buttered crumbs and bake at 450°F. for fifteen minutes. This dish may be prepared in the morning and set in the ice box. In this case, it should be baked twenty minutes to heat through.

Liver and Tomato Soup. Add one-half cupful finely chopped, well seasoned cooked liver to two cupsful of clear well seasoned tomato soup. Season with a few drops of onion juice one one-eighth teaspoonful onion salt if desired. Serves five.

Liver Salad Dressing. Prepare one cupful boiled liver and press through a sieve. Beat the liver slowly into one cupful mayonnaise. This is good with plain lettuce or as a canape piled on small thin rounds of toast.

Casserole of Liver. Line a well-greased casserole with well seasoned rice. Fill the center with liver which has been cooked and put through the food chopper. Season the liver well while cooking using a slice of onion and several celery leaves if desired. Cover with buttered crumbs and bake at 350°F. for twenty minutes.

Creamed Cauliflower with Liver. Wash and break a cauliflower into pieces suitable for serving. Cook until tender. Mold two cupsful boiled, ground, well-seasoned liver into a mound and surround with the cooked cauliflower. Pour one cupful medium white sauce over the cauliflower. Serves six.

Liver en Casserole. Boil one-half pound of liver until tender. Chop very fine. To the liver add one-half cupful each diced carrots, celery, and mushrooms, one-half teaspoonful of salt and one finely chopped onion. Put into a well greased casserole and cover with the water in which the liver was boiled. Bake at 350°F. for one hour or until the vegetables are tender. Serves four.

Liver with Creamed Onions. Cut two half-inch slices of liver into six pieces. Cover with boiling water and let stand five minutes. Drain and remove the skins and veins. Saute five minutes in a small amount of bacon fat. In another pan saute six medium onions sliced thin. When brown add the liver and four tablespoonsful of flour, stir well and add two cupsful of milk. Cook until thick. Season with salt and pepper and serve with toast points. Serves six.

Mixed Grill. For the mixed grill prepare four slices of liver suitable for serving. Grease a plank well or use a heat proof platter. Dredge the liver with cornmeal, arrange on the plank and broil on one side. Remove the plank from the oven and turn the liver. Arrange on one end of the plank. On the opposite end put three tomatoes cut in half and dipped in melted butter and seasoned flour. In the center, place three cooked carrots which have been sliced in half and dipped in melted butter. Place in the interstices mushroom caps which have been dipped in butter. Return to the broiler and cook until liver is done and the tomatoes and carrots well browned. Garnish with broiled bacon.

Stuffed Calves' Liver. With a sharp knife make a pocket in the liver commencing at the thick end. Fill this with a stuffing made of bread crumbs highly seasoned, adding a little onion if desired. Skewer the open end so that the stuffing will not come out, and lard the upper side with salt pork using a larding needle, or cutting slashes in the liver and laying narrow slices of the pork in the slash. Melt one tablespoonful of fat, add one tablespoonful flour and one teaspoonful salt, three cupsful meat stock, or boiling water to which two teaspoonsful beef extract or jelly has been added. Pour this over the liver. Bake one hour and a half at 300°F. basting with the sauce about every ten minutes. Serve with fried onions or peppers.

Potted Liver. Use lambs', pigs', or calves' liver. Cut the liver in strips and brown for three minutes in hot fat. Then cook slowly in high seasoned stock until very soft. Use just enough liquid to keep the meat from burning. Rub through a coarse sieve. Taste, and add more seasoning if necessary. Add enough melted butter to make the meat of packing consistency. This makes a delicious sandwich spread. And is also nice for canapes.

French Ways of Cooking Livers

I pound of liver
1 slice of bread grated—this means grated, not crumbled.
1 tablespoonful of chopped parsley
½ teaspoonful of salt
¼ teaspoonful of pepper
A very thin slice of ham

Wash the liver well and cut into thin slices; put into casserole; sprinkle the bread crumbs over it, then the parsley, pepper and salt. Cut the ham into strips and lay it on top, then pour in one teacupful of cold water. Bake in oven for half an hour.

1 pound of calf's liver
3 tablespoonsful of grated bread crumbs
4 large mushrooms, chopped
1 medium-sized onion finely chopped
2 sprigs of parsley finely chopped
½ teaspoonful of salt and a pinch of pepper.

Cut the liver into slices half an inch thick, and sprinkle each slice with the mixture of bread crumbs, mushrooms and seasonings; put in a casserole, pour over it one-half pint of cold water or good soup stock, and bake in a slow oven for three-quarters of an hour.

Liver Molds. Take 1 pound of liver, boil it and grate it with three strips of bacon. Mix it with about one-fourth of the amount of bread crumbs, the yolks of two eggs and seasoning to taste. Steam in buttered molds.

Larded Liver. Take a lamb's liver and lard it in rather close rows, covering the whole upper surface. Place it in a deep casserole with chopped onions, carrots, slices of fat bacon, salt, pepper, and sweet herbs (sage, etc.). Cover with water or a good soup stock. Cook in a moderate oven for forty or fifty minutes. Turn out on a hot dish. Thicken the liquor slightly with flour and butter, adding a small amount of lemon juice and paprika.

Minced Liver. Boil 2 pounds of liver till it is firm enough to chop easily; then mince it rather finely with a little bacon. Chop a Spanish onion and fry slowly in butter or bacon fat just long enough to make it soft; then add the liver, season very slightly with salt and pepper and cook slowly, stirring continually for ten or twelve minutes. Then add a cup of soup stock and a tablespoonful of chopped parsley and a very little Yorkshire relish (this last item may be omitted). Cover closely and let simmer gently for about an hour. Serve on toast.

Calf's Liver with Fine Herbs.

1 calf's liver
1 bunch of savory herbs, including parsley
2 chopped shalots (onions may be used instead, but they should be parboiled before chopping)
1 teaspoonful of flour
1 tablespoonful of vinegar
1 tablespoonful of lemon juice
¼ pint of water
Pepper and salt to taste

Cut the liver into slices, dip in flour, and fry in butter till a light gold color. Take out of pan and keep hot. Mince the herbs very fine, put in frying pan, add a little more butter, add the remaining ingredients simmer gently until the herbs are cooked, and then pour over liver.

Calf's Liver Larded and Roasted. Take one calf's liver and lard it. Put it into vinegar with an onion cut in slices, parsley, thyme, bay leaf and a little salt and pepper. Let it remain in this pickle for twenty-four hours, then roast and baste it frequently with the vinegar. Serve it with brown gravy or a sauce made with chopped herbs. The time required for roasting is rather more than an hour.

MOCK DUCK. Take a fresh calf's liver and stuff with duck dressing (sage and onions, which should be parboiled before being mixed with the other ingredients). Put the stuffed liver in a pan, cover with strips of bacon and bake for two hours, basting frequently with the fat from the bacon strips.

LIVER JUICE. Score the raw liver and sear slightly in a pan, for less than a minute. Place the seared liver in a square made of gauze (several folds) and squeeze out the juice. About 150 cc. of juice from 2 lbs. of liver. serve cold. Orange juice may be taken after it.

BROILED LIVER. Dash liver in hot water, remove the skin, and broil until done, or par broil in mineral oil. Five minutes are generally allowed for cooking.

SCRAPED OR SEIVED LIVER. Dash liver in hot water and remove the skin. Broil the liver 5 to 10 minutes (until cooked through) and scrape through seive, or press through potato ricer.

LIVER SOUP. Add 90 gm. of scraped or seived liver to 200 cc. of clear tomato or chicken broth with fat removed. Season with onion if desired.

LIVER SOUP (Creamed). 120 gm. chopped liver, 220 cc. milk, 4 tsp. flour, 10 gm. butter. Make white sauce and add liver.

Auburn, New York, Has First Diphtheria Death in Nearly Four Years—Auburn's record of 'no deaths from diphtheria since March 9, 1924, was broken on January 9, by the death of a six-year old child. The report states that this child had not been immunized against diphtheria with toxin-antitoxin, that a physician was not called early in the disease, and that antitoxin was not given until two days after his first call. Two younger children in the family were given protective doses of antitoxin, but two older ones who had been immunized some time ago with toxin-antitoxin were not given any. All four remained well.

This is the second death from that cause since July 21, 1923.

With all the publicity which has been given to toxin-antitoxin as a means of preventing diphtheria it would seem as if all parents in Auburn must have heard about it, and having heard of it, would take the necessary steps to have their children immunized. Perhaps the death of the six-year old will serve to arouse the neglectful parents to a sense of their responsibilities.

ORIGINAL ARTICLES

ORATION IN MEDICINE

A DISCUSSION OF THE PROBABLE ETIOLOGICAL RELATIONSHIP BETWEEN PEPTIC ULCER AND VAGATONIC SYNDROMES.*

By VIRGIL E. SIMPSON, A. B., M. D., F. A. C. P., Louisville.

INTRODUCTORY.

The term "border-line cases" appears frequently in medical literature. Unfortunately the expression is rather loosely used. It is only in the sense of a definite plan of treatment that a case may properly be termed a border-line case. There are some conditions in which neither mechanical measures nor agencies affecting physiological or metabolic function are uniformly satisfactory. In a certain per cent, certain mechanical measures appear to afford the greatest relief, in others the therapeutic measures of the internist appear satisfactory, while in still another per cent the combination of the two measures is most beneficial. Is it surgical or is it medical so far as treatment is concerned, becomes a matter of moment in these border-line cases. Billroth wrote wisely when he said "The surgeon can judge safely and correctly of the state of his patient only when he is at the same time a physician. The physician who refuses to treat surgical patients and attends solely to the treatment of internal diseases must have some surgical knowledge or he will make the grossest blunders." In other words, the internist who plans a diet or directs a series of exercises or makes a blood count or writes a prescription, all done, however, scientifically, does not encompass a sufficient knowledge; likewise it is inadequate equipment possessed by the surgeon who merely cuts and he must not be content in the belief that it is all of operation in merely having his patient recover from the operation. I believe that with the broadening of scientific medicine chronic infections will be considered more and more a medical problem. Nearly 10% of all gall bladder surgery reenter the surgical arena; a similar percentage reenlist for surgical service in the gastric division; and in neither of these figures is included the frank operative casualties nor the larger group of chronic invalids who become candidates for reconstruction. But there are no border-line cases in the diagnostic field. Here surgeon and internist and regional specialists alike must meet upon a common and often difficult ground. It is obvious, unfortunately, that the just criticism can be made entirely too frequently of the internist, surgeon and regional specialist alike, that each approaches his case affected with a specialization strabismus; he habitually suppresses every door except the exit leading to his specialization therapeutic anteroom. That specialization has worked incalculable benefit to the patient seeking relief is indisputable, but that he likewise suffers from a circumscribed field of diagnostic study is equally true.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

Peptic ulcer may present border-line phases in its treatment but its relationship to vagal nerve imbalance presents a problem in which internist and surgeon meet on common ground. I have elected to discuss it from the standpoint of (1) the mechanics of ulcer development, (2) its causal factors with emphasis on vagal overtone and (3) a consideration of the similarity of its clinical picture to that of vagatonia.

ULCER DEVELOPMENT.

It is not my intention to present an argument for any one factor as predominant in the finely coordinated control of the digestive mechanism since I recognize here a community of interests rather than an autocracy. The time is not arrived when one can dogmatically assert that either the autonomic, chemical, endocrine, hormones, anatomic or gradients of irritability of smooth muscle fibre factor offers the solution for this riddle of the digestive laboratory. The modern conception of disease includes the relations of not only infection and immunity but anaphylactic and serum phenomena, metabolic disturbances, endocrine dysfunction and nerve imbalance as well.

Peptic ulcer should not be considered a definite disease entity. It may be a local incident in the course of a systemic disease or it may result from a local damage with no systemic disease. In either case an area of low resistance occurs in the mucosa and then definite tissue change is brought about through gastric physiology. Regardless of cause the damage done to the local cells is followed by changes practically alike. The damaged gastric or duodenal cells are destroyed by the digestive ferments, necrosis and sloughing follow and an ulcer is established. Much more complex, however, is the duration, the clinical course and the possible complications of an ulcer once existing since it becomes subject to such varying influences as the underlying systemic or the local cause, the alterations of digestive secretions, the insult from food and the disturbances of sensory and motor nerve action. There seems no justification for a mental attitude that visualizes no graduations of degree of activity, chronicity or extent of destruction of peptic ulcers. An ulcer produced by a transient cause may be small and superficial and in healing leave an insignificant scar susceptible of only postmortem diagnosis. On the other hand a simple ulcer may persist in activity and result in permanent pathology causing hemorrhage, stenosis, perforation, penetration, adhesions or malignancy. (Fig. 1).

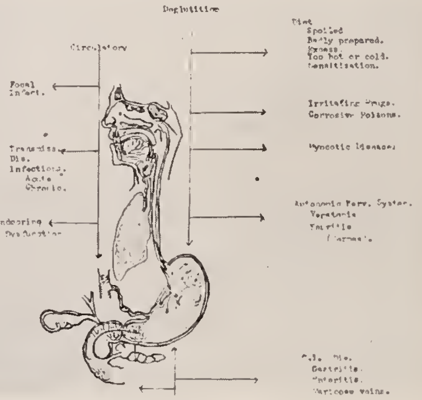

Fig. 1.—Extra-gastric causes of peptic ulcer.

Peptic ulcer may occur at any period between the extremes of life but is diagnosed more frequently between the second and fourth decades. It seems to occur a bit later in males than in females, occuring in the latter before 30 in about 75% of the cases. In the majority of these a history of earlier gastric distress in varying degrees can be elicited. Were these upsets periodic recurrences of ulcer or were they the manifestations of a preulcer state? It cannot be answered except in retrospect. My own experience inclines me to believe that while some ulcers are acute in origin with no antecedent period of digestive disturbances, more are ushered through the door of exit of a period of vagatonia. When a fresh ulcer occurs late in life it is usually the result of a circulatory change in the walls of the stomach. Acute ulcers that develop early are found more commonly in the female.

Two decades ago it was thought that peptic ulcer occurred more frequently in women than in men. This was an era in medicine when clinical histories and symptoms were almost wholly the source for diagnostic conclusions. Hemorrhage was a major symptom and causes for its occurrence were scarcely recognized other than ulcer and young chlorotic women furnished a large per cent of the cases labelled as ulcer. Gastric analysis was infrequently done before and seldom after hemorrhage since it was considered hazardous. The thread test of Einhorn was not developed.

Examination of the feces for occult blood was not made. Radiography was not developed and many cases now uncovered by such study remained obscure. The chapter on ulcer contributed by gastro-duodenal surgery had not been written. Peptic ulcers, as recognized today, occur preponderantly in males. Vagatonia is almost a male characteristic as sympathicotonia is almost habitual in the female. Business stress, irregular eating habits, poorly prepared food of restaurants and hotels, the injudicious use of alcohol and tobacco, the hurried consumption of food may be named as a partial list of underlying factors. In our series of Vagatonias 51% occurred in males. Considering gastric and duodenal ulcers separately the occurrence of the latter is overwhelmingly more frequent in males while the former is found in a bare majority. Statistics vary as given by different clinicians but the following table presents about the average:

Table No. 1.

Relative Frequency of Gastric and Duodenal Ulcers in the Sexes.

Duodenal	
Males	81.6%
Females	18.4%
Gastric	
Males	50.6%
Females	49.4%

A peptic ulcer may, conceivably, be caused by transference, by way of the blood stream or lymphatic channels, of organisms from an infected appendix, gall bladder and other structures related to the stomach or duodenum by blood supply; it is a greater strain on logic to associate an ulcer with an infected tonsil, sinus or pyelitis. The enthusiasm of the propounder of the idea of "tissue affinity" bacteria only serves to recall similar exhibitions of enthusiam of which "flu" vaccine is but one. An interstitial gastritis has followed acute systemic infections and hemorrhagic erosions may follow diphtheria and other diseases. Rehfuss and Laub produced similar conditions in the laboratory by large dosage of a number of toxins, a gastro-intestinal clinical type of lagrippe is well known and, now common in occurrence but less frequently recognized, does tubercular nephritis, primary anemia, pellagra, toxic goiter, send its victim to the gastro-enterologist who diets and lavages in vain.

Table No. 2.

Cause in Histologically Proven Chronic Gastric Ulcers.

Infections	33.0%
Arterio Sclerosis	14.7%
Vagus hyperfunction	13.0%
Chronic Anemia (Chlorotic)	11.0%
Syphilis	7.3%
Vagus hypofunction	5.2%
Postoperative	5.2%
Occupation poisons	4.2%
Endocrine dysfunction	3.4%
Trauma	1.5%

It seems probable that duodenal ulcers are as closely associated with these constitutional disturbances. (Smithies Statistics).

That occasionally an ulcer develops in consequence of a severe burn is probable. The relation between burns and duodenal ulcer based on definite data dates from 1840 when Long published his observations. I believe that the explanation for ulcer development following burns rests on the occurrence of septic processes in the burned area, hence, is in reality an infectious cause. A peculiarity of these ulcers is that they occur most frequently above the biliary papilla rather than on the mucosa surrounding the papilla. Another characteristic is that they occur twice in females to once in males; and, yet another peculiarity is their tendency to remain latent often during life or until perforation occurs which may happen as early as two weeks after the burn. But the attempt to associate ulcer with trauma or social status or worry or debility or heredity, strengthens the convictions that there is an unwritten chapter in peptic ulcer. The possibility of thrombosis and embolism in gastric vessels as being a cause of ulcer was suggested by Virchow. Quite a bit o fexperimental work has been done since in the effort to produce ulcers in this way. The celiac axis has been obstructed, injections of wax and a suspension of chromate of lead into the gastric branches of the splenic artery have been made. Fat emboli have been produced, ligation of occlusion of even the larger arteries has been performed, all with no definite confirmation that ulcer can thus be produced. These are all conditions which bring about changes that are unlikely in the stomach. Varicosities, passive venous congestion and other conditions similar to that found in hepatic cirrhosis have all been offered as possible causative factors, but do not appear to be of great value. The ulcers of uremia are difficult of explanation. Tubercular ulceration may occur in the duodenum as well as elsewhere in the bowel and scarcely merits discussion here. Syphilis is probably a rare cause of ulceration. It would seem that the secondary stage with its mucous patched, epithelial and endothelial eruptions should be a more frequent cause than the literature allots. It appears to follow the degeneration of a gumma or be the result of an endarteritis, It caused 2.5% of ulcers in Freidenwald and Morrison's series of 200 cases.

Table No. 3.
Causative Factors in 200 Cases of Gastric and Duodenal Ulcers.
(Friedenwald and Morrison)

Causes	No of Cases	Percent
Infections	84	42
Disturbances of the Nervous System	28	14
Disturbances of the Endocrine System	8	4
Hyperchlorhydria	17	8.5
Trauma	4	2
Anemia (chlorosis)	28	14
Arterio Sclerosis	26	13
Syphilis	5	2.5

Another cause may be attributed to surgical sequences. In the effort to relieve a primary ulcer by gastro-enterostomy, a secondary ulcer may occur. The incidence of such occurrence is approximately 5%. The diagnosis of secondary ulcer is always more difficult because of gastro-enterostomy. Most of these recurrences appear within a year following the operation. It would appear that in the development of these secondary ulcers that conditions similar to those surrounding the original ulcer have been merely transferred to a new region and serves as an added argument that gastro-enterostomy only establishes a condition more favorable to the cure of the *primary* ulcer.

I am inclined to think that diet has more to do with the continuance of an ulcer than it has with its causation, though there has accumulated in the literature since the experimental work of Decker in 1887, considerable corroborative evidence that the eating of hot, irritable foods may have some etiological role. But with the same evidence it has been attempted to prove that a diet consisting largely of protein food, particularly meats, is more positive of ulcer formation than a vegetarian diet. Strength has been added to this latter claim in recent laboratory studies of gastric secretion on varied diets; a distinctly higher acidity occurs on a meat test meal than is found in the same individual on a cereal test meal. It also seems probable that poorly prepared and greasy foods together with foods that are difficult of digestion for other reasons, by retarding evacuation of the stomach contents thus prolonging the period of gastric activity, may be considered as low grade causative factors. In this connection it is interesting to study the variations in the stomachs of different animals in the schematic pictures by Scheunert, on gastric physiology. (Fig. 2). The explanation is offered that the diversified architecture of these stomachs is dependent upon the animal's diet, but with our present knowledge of comparative anatomy one finds it difficult to explain all of the bizarre developments on a dietetic basis alone. The position of the stomach probably has no relationship to ulcer development. In fact with the advent of x-ray study of the upper digestive trace, we have come to recognize that standards established for shape or position of the stomach are purely arbitrary. In the majority it can be stated that gastric outline and position is dependent upon the habitus of the individual; the fish-hook or the figure "J" type occurring in the longbarrelled individual, while the high transverse or cow-horn type occurs in the plethoric habitus. Studies of either of these usual types or of their various modifications, however, are not conclusive that ulcer develops more frequently in the one than in the other.

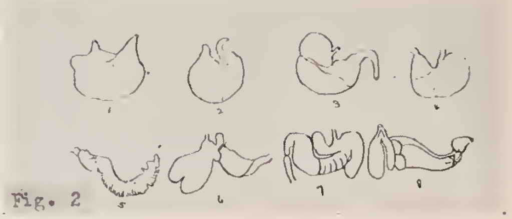

Fig. 2

Scheunert's schematic appearance of stomachs of different animals. Note particularly the difference in size, shape and location of the cardia, fundus, and pylorus. 1. hog; 2, dog; 3, horse; 4, ant eater; 5, kangaroo; 6 ruminant, 7; hippopotamus; 8, whale.

The suggestion that peptic ulcers are caused by insufficient anti-pepsins, dates back as early as 1772 when John Hunter wrote his opinion that there was some vital principle present in all living tissue which discouraged its digestion. That this theory was not true in toto was proved by Bernard in 1856. But it appears, according to Levine, that only the first portion of the duodenum and the stomach itself possess this resistance to the digestive action of gastric juice. By the reduction of the amount of anti-pepsin in the mucosa of the stomach he was able to produce typical ulcers. Koehler advanced this theory another step in 1923 when he determined that the anti-peptic activity of blood in non-ulcer individuals was always higher than that found in the blood of ulcer cases.

This interesting but inconclusive chapter of ulcer causation has been further augmented through the suggestions by Waldeyer that there was a definite anatomical relationship to ulcer in that portion of the stomach called the Magenstrasse. He called attention to the absence of oblique fibres of the lesser curvature and the parts of the anterior and posterior wall adjacent thereto. This absence of oblique fibres in this area forms a groove on their contraction. This groove is called the Magenstrasse. (Fig. 3). It may be noted in this connection that about 95% of ulcers occurring in the stomach are found in this area and it may be significant that the mucous membrane covering this strait is attached firmly to tissues underlying while it is freely movable over the rest of the stomach wall. It is also claimed that there is a close anatomical relationship between the Magentrasse and the duodenum. (Fig. 4).

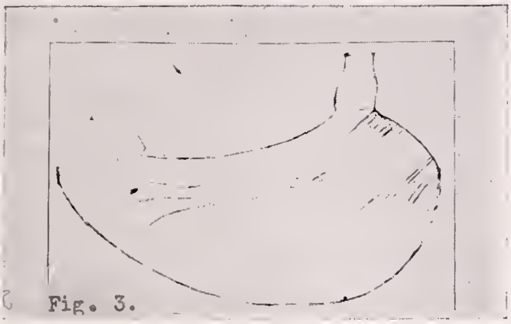

Fig. 3.

Retzius' groove or Waldeyer's Magenstrasse. This groove extends along the lesser curvature from cardia to pylorus; its floor consists of circular and its walls of oblique muscle fibres. The mucous membrane here is firmly attached to underlying tissues while at the fundus it is freely movable. (After Levine.)

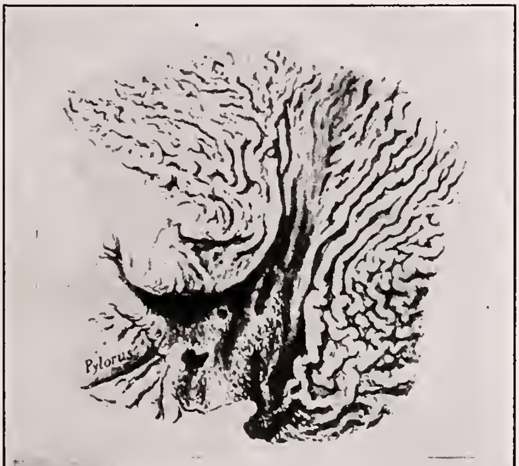

Fig. 4 The magenstrasse in the dog with erosions. (Aschoff.)

Finally, there remains to be considered the relationship of disturbance of the nervous system, chiefly by way of vagus, to ulcer production. The digestive system receives its nerve supply from the vegetative nervous system which may be considered as an outgrowth of the cerebro-spinal system. The vegetative nervous system is divided, anatomically, into two sections: (a) one originating from the mid-thoracic and upper lumbar cord with fibres passing through the ganglionated cord and (b) the other originating in the brain, medulla and sacral segment of the cord, and having no relation with the ganglionated cord. The author prefers to call the vegetative nervous system the autonomic nervous system and adopts this classification:

Autonomic Nervous System.
Sympathetic autonomic.
(The fibres passing through the ganglionated cord).
(b) Vagal Autonomic.
(The fibres having no connection with the ganglionated cord).

The sympathetic autonomic system activates the following portions of the digestive system:

Musculature.
Salivary glands.
Liver.
Gall Bladder.
Pancreas.
Secretory glands of Stomach and Intestine.

The sympathetic autonomic activates and the vagal autonomic inhibits the following:

Oesophagus.
Sphincters.
Cardiac end of stomach.

The vasomotor supply to the vessels of the stomach and intestine is derived from the sympathetie autonomic system. The action of these two groups is antagonistic, a physiological fact of prime importance, since it is through their opposing action that a balance in function is maintained in the organs they supply. (Fig. 5).

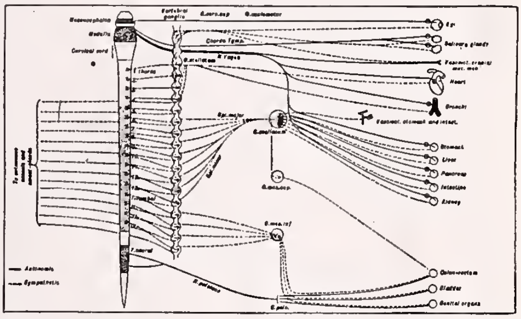

Fig. 5.—The Autonomic Nervous System and the distribution of its divisions. Vagal pathways in solid lines, sympathetic in dotted lines. (Kraus, after Meyer and Gottlieb, Jr. Nervous and Mental Diseases, 1918).

The main branch of the vagus supplies the entire digestive tract to the level of the splenic flexure; the remainder of the tract is supplied by the sacral branch of the vagal autonomic system with functions similar to those of the main branch of the vagus. The stomach musculature and secretory structures are activated through vagal influence and per contra are inhibited by sympathetic action. Overtone of the vagus multiplies its physiologic action and is termed vagatonia while over- activity of the sympathetic group is called sympathicotonia. Ulcers have been produced experimentally by section of both the sympathetic and the vagi: slightly typical ulcer lesions have been produced in the stomach by establishment of experimental pathology of pons, bulb, cervical spine and the vagus nerves. Stahnke, in his experimental work with reference to the cause of ulcer, studied the effects of prolonged stimulation of the vagus on the peristalsis and secretion of the stomach. He used the Faradic current as the stimulant and dogs were selected as the experimental animals and the observations were made antemortem through gastric fistulae and in necropsy. He found marked increase in the secretion and blood supply of the stomach during the antemortem observation. No macroscopic changes nor microscopic changes were found in the nerve in the postmortem study, but a definite gastritis with superficial defects in the gastric mucosa were found postmortem. Since the beginning of an ulcer must be considered merely as a local damage to local cells, it is not unreasonable to conclude that the pathological process is in no wise specific, since such a variety of agencies, each affecting physiological processes in a different way, are all capable of producing this local damage to local cells. As many varieties of germs and their toxins are capable of producing ulcers so may toxic materials, the result of faulty metabolism, be properly considered as possible causes. These metabolic toxins may be the result of a primary disturbance of the endocrine glands. Likewise trophic disturbances are, in my opinion, of greater importance in ulcer development than the literature seems to indicate. An herpetic eruption of the lips, nasal mucosa or buccal mucosa are not uncommon evidences of disturbance of the nervous system in such conditions as malaria, lagrippe, pneumonia. These ulcers require days or even weeks for the healing process. This period is materially lengthened if these herpetic eruptions are subject to frequent or constant local irritation. Judging from the analogous function of the gastric mucosa, its physiological and particularly its anatomical construction with the upper and visible portions of the digestive tract it might be reasonable to assume that an herpetic eruption may occur on the gastric mucosa. When once established if there is existing a condition presenting pyloric hypertonicity and an increased hydrochloric acid content, either as to percentage during the digestive period or a protracted formation because of retention of food, this herpetic eruption may conceivably result in a well defined ulcer. It must be borne in mind that even in an herpetic condition there may be an associated streptococcus hemorrhagic ganglionitis. Vagatonia may offer a suitable background as a condition inimical to the healing of a superficial ulceration. The relationship between disturbances of the nervous system in general and digestive function have long been appreciated by the profession. Extreme emotional manifestations of sudden occurrence such as anger and grief, temporarily inhibit digestive function and may even actually stop it. Less high degrees of emotional disturbances but long continued such as domestic infelicity or business stress, may likewise affect the digestive apparatus to a lesser degree. If these conditions obtain in the essential vagatonic individual the disturbances in the digestive tract will likewise be greater. Let us consider the vagatonic type as a whole in a brief manner and then more in detail as to its gastro-intestinal manifestations. I have elsewhere discussed Vagatonia in its relationship to thyrotoxicosis, making clear my conception of the type as originally described by Eppinger and Hess. I do not look upon it as a disease, but rather a constitutional state and when fully developed presents a fairly characteristic picture. The Vagatonic type usually seeks medical advice as a relatively young or middle aged patient and has disturbances which on analysis appear to be rather insignificant. He generally complains of free perspiration, particularly the hands and feet, increase in flow of saliva, palpitation, hives, anxiety neuroses, constipation, lump in throat, acid eructations of both gas and food, heart burn, variable appetite, epigastric distress, epigastric fullness, mucus in stools, precordial discomfort, attacks of heart hurry, pseudo-anginal attacks, easy fatigue, lack of confidence, insomnia and mental irritability. Naturally, all of these symptoms are not uniformly present, or when present, of uniform degree. Examination of such a case will show some or many of the following findings: contracted pupil, a narrow palpebral fissure,

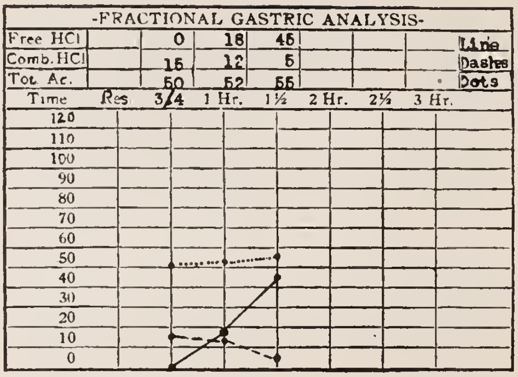

Fig. 6. Case 3377.

winking reflex diminished, lessened lachrymal secretion, blepharospasm, hyperhydrosis, acrocyanosis, dermatographia, acne, urticaria, angio-neurotic edema, husky voice, respiratory arrhythmia, cardiac arrhythmia, bradycardia, eosinophilia, erythromelalgia, increased sugar tolerance, increased fat tolerance and status thymico-lymphaticus.

The findings with reference to the digestive system include diminished gag reflex, increased salivary flow, esophagismus, cardiospasm, hyperchlorhydria, pylorospasm, gastric hypertonia, reflex vomiting, mucus colitis, tender colon, spastic sigmoid, visceroptosis, visceral crises, aerophagia and epigastric tenderness.

So far as the effects on the digestive system are concerned a preponderance of vagal tone will, then, be manifested as a multiplication of normal vagal impulses. This multiplication of physiological effect results in an expression of exaggeration of secretory and motor function. Since normal vagal impulses result in contraction of gastric musculature and a production of gastric secretion, irritation of the vagus will produce a group of symptoms which are also found in ulcer cases. Attempt at differentiation depends on the clinical history and finding, gastric analysis and x-ray study of the upper digestive tract. While the history as given by the patient is important, I have long felt indisposed to attach to it the importance given by Moynihan who wrote, speaking particularly of duodenal ulcer, that "It is, therefore, not necessary to the attaining of accurate diagnosis that an examination of the patient be made; the anamnesis is everything, the physical examination is relatively nothing."

CLINICAL PICTURE.

An easy diagnosis is the prerogative of the superficial clinician but the careful student often finds it difficult even impossible to draw a sure, sharp line between the vagatonias without ulcer and the ulcer cases with or without a vagatonic syndrome. Deaver stated that not one-half the patients treated non-surgically actually have an ulcer. Five per cent of peptic ulcers show no symptoms. An acute perforating ulcer may herald its presence only with the advent of the symptoms of perforation. Heart burn, sour stomach, eructation of gas or food, epigastric pain, nausea, vomiting even hemorrhage are not necessarily evidences of ulcer for they are primarily dependent upon motor disturbances of gastric physiology. They occur as common accompaniments of disturbances of gastric motility in many abdominal diseases. The real feature of diagnostic interest is that they are characterized by periodicity when they occur with ulcer while they are more constant when due to appendicitis, gall bladder disease or inflammatory lesions of the bowel. A peptic ulcer syndrome seen in young adults who have appendicitis or cholecystitis is often diagnosed as ulcer and comprises an undetermined per cent of the reported healed ulcers by medical management. Extragastric diseases may cause muscle spasm and tenderness can be elicited just as they can be elicited in non-ulcer cases showing vagus irritation with retention, pylorospasm and an increased HCl content and in whom no extragastric disease can be found. Tender areas in the absence of obstruction or deformity should be considered of doubtful diagnostic value in ulcer. Retention is found in over 40% of cases of demonstrated ulcer of the stomach and occurs in over 60% of duodenal ulcers. But retention occurred in 87% of the group of vagatonias analyzed for this study. (Table 4) Test meal recoveries depend upon the quantity and kind of meal used. The kind of meal is, perhaps, of less importance than that the observations be made uniformly with the same meal. The Boas-Ewald meal is probably most frequently used for routine initial study. From 60 to 80 cc. is the average amount recovered in my work with normal stomachs. Perhaps of greater value is the determination of retention six to eight hours after the ingestion of a full meal. I have often found retention with a test meal study and no six hour retention of an opaque meal. In fact, retention in the X-Ray study occurred in a relatively small percent of our vagatonias though a tardy passage was noted at the beginning of the study. Opaque meal retention is more frequent in duodenal ulcer than of the ulcer of the stomach. The retention in vagatonias can be overcome by a check study under action of some of the belladonna group. Much less or no influence will be noted in the ulcer group of obstructive type. More information is obtained from study with the so-called retention meal. This meal contains either prunes, raisins, string beans,

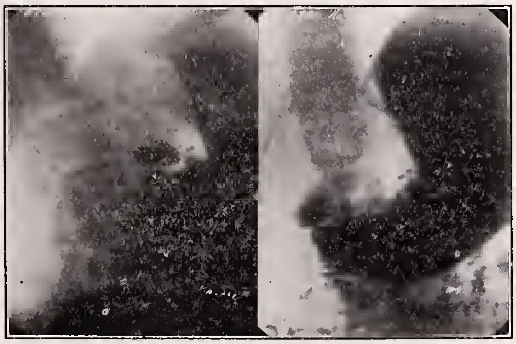

Fig. 7. Case No. 3377—No tenderness, retention, irregularities or filling defects of stomach or duodenum.

rice or lycopodium powder, is given as a regular evening meal and the stomach contents recovered before breakfast the following day.

Hemorrhage as hematemesis occurs in about 20 per cent of ulcer cases at some time. Such an incidence argues its importance as a symptom. It may occur as a single large hematemesis as the first evidence of the existence of an ulcer, especially in young women. Repeated small hemorrhages may also result in the vomiting of blood in gastric ulcers. About the same percent of duodenal ulcers show bulk blood. Occult blood in test meal study is found in 40 per cent of gastric ulcers and is found in the stools in about 33 per cent. Occult blood was found in 13 per cent of my vagatonic group. The Einhorn string test is called by one clinician a ''clinical plaything'', while others seriously proclaim its value. A number of intragastric conditions may result in bleeding in

The following table contrasts the vagatonic and peptic ulcer pictures as observed in the series of cases studied for this paper.

Symptom	Vagatonia	Peptic Ulcer
PAIN—		
Character	Burning	
Location	General Rarely radiates	Localized, frequently radiates
Guard	Little or none	Usually present and definite
Time	½ to 1 hour after eating	1 to 2 hours after eating if gastric; 2 to 4 hours if duodenal
Relief	Fasting Lavage Alkalies	Food, alkalies
TENDERNESS	General, moderate	Localized, more severe
HEMATEMESIS	Occasionally 2 percent	Inconstant 20 percent
VOMITING	Occasionally 18 percent	Intermittent 60 percent
TEST MEAL STUDY		
HCl.	Hyperchlorhydria 67% Hypochlorhydria 2%	Hyperchlorhydria 30% Hypochlorhydria
Secretion	Hypersecretion moderate	Hypersecretion usual in course but irregular
Occult Blood	Seldom	Intermittent
Bulk Blood	Rare	Intermittent
Retention	Usual 78 percent	Variable 40-60 percent
Fasting Content	Small amount	Larger amount
Microscopic Retention	Not constant	Not constant
VAGAL MANIFESTATIONS		
Cardiac Arrhythmia	Common	Common
Palpitation	Common	Common
Eructation	Gas and food	Gas frequent Food infrequent
Fullness	Present	Present
Heartburn	Frequent	Frequent
Aerophagia	Frequent	Less so
Globus	Frequent	Infrequent
Interdigestive phase	Often present	Often absent
Appetite	Variable	Good
Constipation	Usual	Less frequent
X-RAY STUDY—		
Motility	Increased, moderately	Increased, markedly
Pylorospasm	Present	Present
Filling Defect	Absent or temporary	Present and persistent
Niche	Absent	Often present
Hour glass contraction	Absent	Occasional
Deformities	Absent	Occasional
Rugae	Not Visualized	May be visualized
Retention	Generally present	Variable

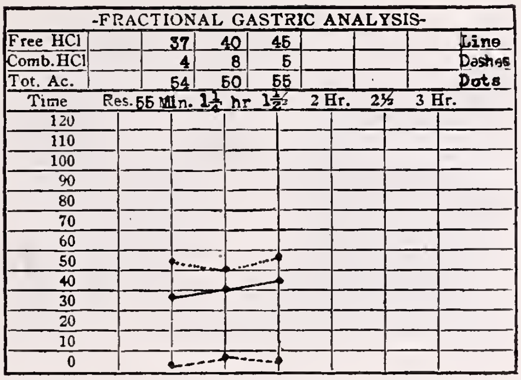

Fig. 8. Case 3550-W.

addition to ulcer; cancer, tuberculosis, tumors, benign and malignant, gastritis, syphilis, angiomas, hemorrhagic erosions, aneurysms and foreign bodies must be excluded. The list of extragastric causes of hemorrhage is a long one. More than a score of causes is listed by Rehfuss. I have seen large, repeated hemorrhages from the stomach with no demonstrable lesion at operation other than a diseased gall bladder. I have observed it as a vicarious menstruation. Food sensitization, of which angio neurotic edema may be a manifestation, has also been of peculiar interest in my series.

Disturbances of Motility

A new chapter is being written on the functional motor disturbances of the digestive system and with its advent will come a marked readjustment of our present understanding and methods of study of gastro-intestinal motor function. The rearrangement resulting from fluoroscopic and serial roentgenological study of the digestive tract has already modified much of our former conception and the work of Carlson, Alvarez and Daniel Opolu who are approaching the problem through laboratory study of both excised and untraumatized gastric musculature is in the making of a fund of knowledge which visualizes little short of an actual revolution of our present knowledge of this phase of digestive physiology. For example, it has already been demonstrated that there is a decided difference in the degree of irritability of different portions of the stomach wall. The digestive tract is a muscular tube along which food passes from zones of high tonus, rhythmicity and irritability to zones of lower activity. The conclusions thus far reached have come to be recognized in the literature as the gastric "gradient" which conveys the determination of tone, irritability and rhythmicity of segments of the viscus. It has been shown that the abnormal progress of contraction waves across the stomach is partly due to the variations in the latent periods of muscles in the cardiac end in contrast with that of muscles at the pyloric end. Any upset of the normal gradient resulting in its reversal is evidence of disease. Electrogastrograms have been made which in their interpretation of underlying physiology suggest a "gastric pacemaker" located probably on the lesser curvature toward the cardiac end which strongly parallels the modern study of heart contraction with electrocardiograms.

Obviously there must be two types of gastric motor function; (a) that characteristic of the sphincters and (b) that which is exhibited in the remainder of the gastric musculature. Disturbances in physiological motor sequence are explained by Alvarez as disturbances or reversals of the gradient. Marked variations of the mechanism may occur but the following constitute a workable grouping: regurgitation, gastric or duodenal rumination, aerophagia, singultus, nausea vomiting. Viewed from the standpoint of the normal gradient, the motor disturbances of the stomach may be grouped under disturbances of sphincter action which result in spasm or insufficiency of the cardia and pylorus and disturbances of the motor function of the remainder of the gastric musculature which are classed as increased, diminished, arrested, or reversed peristalsis. Spasm may be regional, circumscribed or total as first suggested by Holzknecht and Lugar in 1923.

The propulsion of food from esophagus to stomach is controlled chiefly by the vagal autonomic nerves; the musculature of the esophagus can be removed with no interference with deglutition if the mylohyoid muscle be left in situ. Some sympathetic fibres are distributed to lower end of the esophagus, but of more importance is the existence

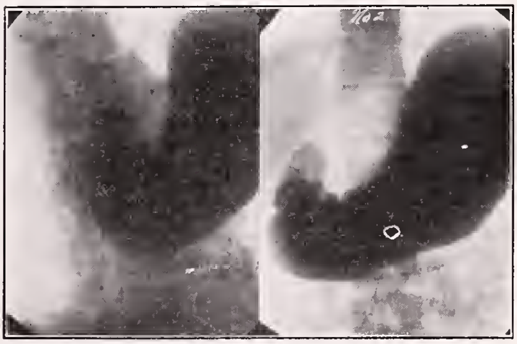

Fig. 9. Case No. 3550-W.—Prepyloric tenderness. Normal cap, no filling defects or retention.

of intrinsic nerves found in the terminal esophagus and cardia established by the work of Cannon. Their activity becomes a matter of clinical importance when some organic disease involves the vagus either centrally or peripherally and has been so recognized, but the functional disturbances of the vagus are less appreciated. As a matter of fact, such functional disturbances cause as pronounced interference with function as do the organic changes and do so equally when the condition affects the esophageal branches directly or as a reflex effect. Further, it must be borne in mind that the cause for these reflexes need not be looked for in the vagus alone since they may be found residing in the sympathetic autonomic as well.

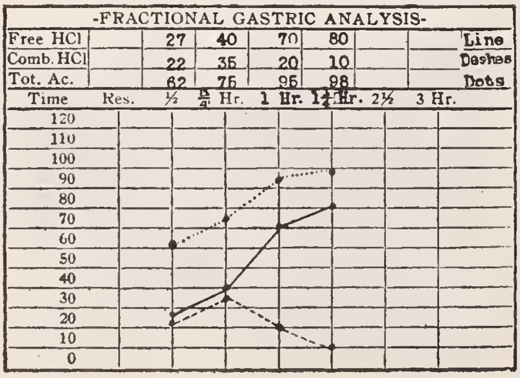

Fig. 10. Case 2138.

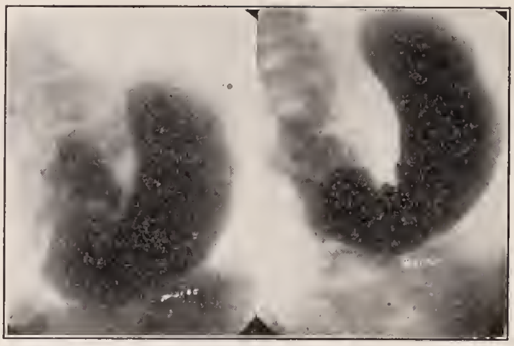

Fig. 11. Case No. 2138.—Hypermotility, pylorospasm, ptosis, No irregularities or filling defects. Cap normal.

With these underlying principles in mind, Held and Gross made five groupings of the patients so affected. 1. A group with substandard autonomic nervous systems as a result of inheritance. These patients are well physically yet they have the subjective and objective symptoms of vagatonia—cyclic vomiting, enuresis, laryngismus stridulus, urticaria etc. 2. A group presenting vagatonic instability the result of a status thymicolymphaticus. These patients have low thresholds of activity, both mental and physical, hence are never equal to large responsibilities. They are long-barrelled and tend to visceroptoses; the stomach is usually of the long, vertical type and cardiospasm is frequent. 3. A group whose unstable autonomic system becomes disturbed reflexly through diseases of the gall bladder, genito-urinary tract, etc. The vagatonia plays the role of a predisposing agency, cardiospasm and pylorospasm are common sequences. 4. A group presenting gastro-spasm through toxic agencies, eg. uremia, chorea, gout, parasites, etc. 5. A group presenting cardiospasm with the exciting agency arising from a local esophageal disease, eg. ulcer, erosions, scar tissue, etc. Such a grouping does not minimize the importance of seeking out the exciting agent or disease but rather is meant to emphasize the existence of a powerful predisposing factor in an unstable autonomic nervous system. Von Bergmann demonstrated that a vagatonic state predisposed an ulcer formation and continuance. Held truly says "it is surely of clinical importance to recognize the fact that in an organic disease like gall stones or renal colic, if associated with cardiospasm, vagatonia plays quite a role as a predisposing causative factor." Increased tonus in the cardia has given rise to some confusion in terms. An effort has been made to differentiate as separate clinical conditions *spasm of the cardia* from *cardiospasm*. The former is intended to convey the idea that the trouble is a purely transient one, while the latter is a persistent condition resulting in hypertrophy and variable dilatation of the esophagus. It would seem that for the sake of clarity it would be better to follow the phraseology adopted with reference to spasm of the pylorus and speak of any conditi n of increased tonus in the cardia as cardiospasm and dividing it into two groups, transient and persistent. Transient cardiospasm occurs in neurotics while in persistent cardiospasm fissures, ulcerations, trauma, diverticuli, hyperchlorhydria, congenital defects and irritations of the vagus constitute an interesting etiology. In the transient type there is a slight sense of obstruction in the cardia with no regurgitation of food. Fluids as well as solids give rise to trouble. Frequent hiccough, epigastric discomfort of a mild type with negative x-ray evidence of obstruction. In the persistent type the symptoms accompanying the transient form are present to which are added actual pain, usually epigastric in location but frequently resembling angina in its character and distribution. Regurgitation of food is present, dysphagia is complained of and the x-ray study shows obstruction to the passage of the barium meal with dilatation of the esophagus. This dilatation is usually conical in shape at the distal end of the esophagus, its outline is smooth and symmetric. Visualized peristalsis is a significant fluoroscopic sign in the early or transient cases. The longer the condition lasts and hence the greater the dilatation the less peristalsis will be observed. In complete closure of the cardia from an organic cause such as cancer, peristalsis is absent.

The most common site of overtone of the gastric musculature is the pylorus. Spastic pylorospasm in the adult was first described by Kussmaul and by Still in the infant. Roentgenology has convinced the last doubting Thomas of its actual existence and has given it clinical importance, as well as, the possibility of correct diagnosis. But while spasm as a sign is demonstated by the x-ray its significance must be interpreted by clinical study. Pylorospasm may be transient or persistent. When transient it is due merely to an increased tonus dependent upon vagal nerve irritability, when persistent it is most commonly due to some intragastric disease such as ulcer near the pylorus in either the stomach or duodenum and may lead to definite hypertrophy with thickening of the pyloric structures which can sometimes be uncovered clinically as a palpable mass. Pylorospasm is usually found regardless of the site of the ulcer. In addition to the ulcer formation, fissures or tumors either benign or malignant may give rise to pylorospasm. There are a number of extra gastric causes for pylorospsam; appendicitis, cholescystitis, tabes renal calculus, terminal chronic interstitial nephritis, drug poisonings and disturbances of the autonomic nervous system which are wholly functional, constitute ready examples. (Table 4)

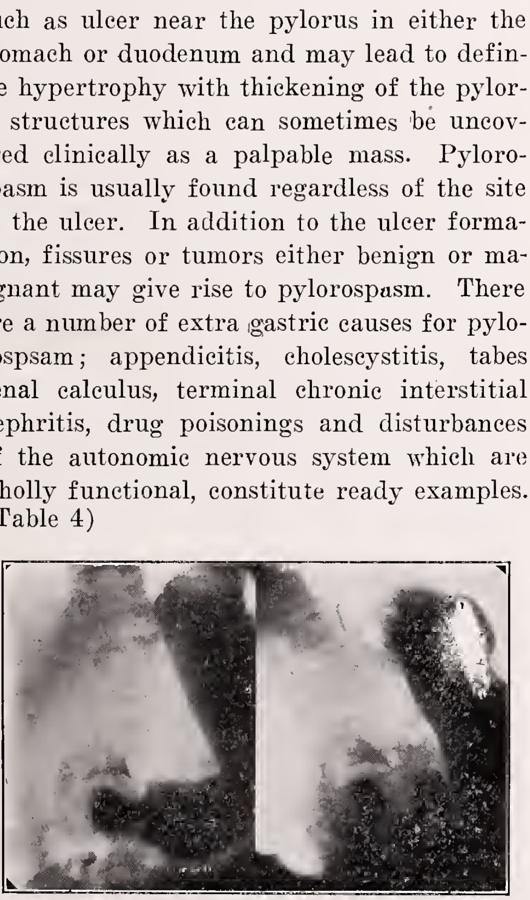

Fig. 12. Case No. 2876.—X-Ray study showed no evidence of Gall Bladder or Appendiceal disease. Retention but no filling defects.

Table No. 5.

Causes of Pylorospasm Arranged in order of their frequency, based on Rehfus' study.

1. Intragastric.
    - Pyloric Ulcer
    - Lesser Curvature Ulcer
    - Duodenal Ulcer
    - Fissure
    - Benign Tumors
    - Malignant Tumors
2. Extragastric.
    - Gall Bladder
    - Appendix
    - Renal Calculus
    - Chronic Drug Poisoning
    - Tabes
    - Interstitial Nephritis
    - Functional disturbances of the autonomic nervous system.

The symptoms incident to pylorospasm will be those of a group which are wholly due to the organic lesion producing the spasm and another group which are the direct result of the spasm. Of this latter group, retention of food is an outstanding feature. This may be expressed as a sense of fullness suggesting increased tension, by regurgitation of both food and gas, by nausea with or without vomiting, by an aerophagia, by pyrosis often the result of hypersecretion from retention and a group of nervous phenomena consisting of irritability, variable appetite and mental depression.

Fluoroscopic study in pylorospasm shows the meal being driven into the antrum with a variable period before any passes into the duodenum; the rest of the stomach is dilated but shows active peristalsis. When the opaque meal does pass it does so as a fine stream and the bulb fills slowly. Palpation does not change the pyloric contour. There will frequently be a six hour retention. The sphincter pyloric is a rather frequent site of spasm and the x-ray reveals a striking picture; the pylorus looks as if abruptly cut off and is much dilated and usually the six hour residue is rather large.

Incisurae may be either intragastric or extragastric origin. They may appear spontaneously but usually are induced by pressure over the diseased organ causing the spasm as an appendix or gall bladder. They may occur singly or in multiple and generally are found on the greater curvature. They occur in neuropathic patients and are particularly frequent in vagatonia when they persist, disappearing only under deep narcosis; they are usually situated opposite an ulcer on the lesser curvature.

Total gastrospasm is the rarest form of spasm and is usually due to some extragastric course. Lead poison, tabes, scirrhous cancer,

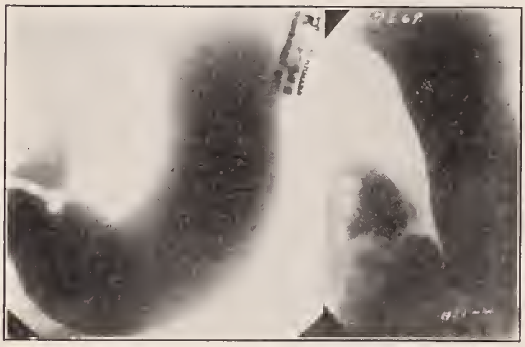

Fig. 13. Case No. 3722.—Normal peristalsis no pylorospasm, irregularities or filling defects. Cap normal. Further X-ray study showed normal gall gladder, and appendix.

even morphinism may be the cause. Hour glass contraction occurs in 6.5 per cent of all cases of healed gastric ulcers.

Aerophagia is a common symptom, so common, in fact, that fully four-fifths of patients who complain of eructation actually swallow air. In a vast majority of these an effort to explain the symptom on this basis results in either incredulity or resentment. If the "gas" appears on an empty stomach or immediately after eating or is associated with rapid eating or nervous upsets or is free from odor and taste it is all but certain to be due to swallowed air. If the cardia is spastic there is frequently experienced considerable discomfort as the column of air moves up and down in the esophagus finally to be forced through into the stomach. Distension of the upper abdomen may occur rapidly when large amounts are swallowed. As a result the diaphragm may be pushed upward and the heart tilted to the right causing palpitation or arrhythmia. Epigastric fullness and an early loss of appetite while eating occur. The pharynx will be seen to rise before the actual belching occurs and will assist in establishing the presence of the condition. Fluoroscopic study will show the column of air following the barium and then accumulate in the cardiac end of the stomach to three or four times the normal amount. Air may accumulate in the splenic angle of the colon and thus two air chambers be seen. Aerophagia is often seen in gall bladder disease, especially with gall stones. In fact it is almost uniformlly associated with some or all of the group of symptoms suggestive of vagal disturbances; the pseudo-anginas of young people are usually associated with or are due to aerophagia. Of greater frequency does it occur in neurotic patients in whom no organic cause can be found. It is present quite often in cases with visceral adhesions.

Nausea and vomiting occur frequently in both gastric and extragastric conditions. They usually occur in order of nausea and vomiting but the latter may take precedence; either may exist without the other. All degrees of nausea may occur from the mild though oftentimes frequent nausea of the neurotic to the persistent, intractible type of an intestinal obstruction. Alvarez is probably correct in his belief that they both mean a reversed peristalsis and this reversal may originate in the intestine. Ewald stated years ago that in ileus fecal contents arrived in the stomach before vomiting occurred. Whether the duodenum be involved may be determined by lavage of the stomach, if no duodenal contents be present the stomach alone is involved. There are many causes of nausea and vomiting which have no relationship to the digestive system and must be explained in a diagnostic study. Many are reflex conditions dependent upon disease of the gall bladder appendix or pancreas; putrefaction and fermentation of food products with the attendant absorption is especially provocative and interference of obstruction of the passage of food through the digestive canal at any portion are all frequent causes. In fact, nausea and vomiting may be due to so many causes aside from peptic ulcer and so many cases of ulcer never exhibit these symptoms that it is of little diagnostic value. I am rather inclined to the belief that disturbances of the vagal system induce nausea and vomiting more frequently than does ulcer.

SENSORY DISTURBANCES.

The description of gastric pain should be based on location, constancy, character, radiation, periodicity and the factors by which it is immediately affected. In gastric ulcer the pain radiates toward the back in more than 50% of cases, in some instances the pain is almost wholly localized there. The character of the pain is most often described as a dull, boring, pressure sensation. It is of importance, however, to recognize the fact that the character of the pain frequently varies in the same individual at different times because of different factors entering into its production. Where there is spasm of the gastric musculature, colicky pains are frequently observed. The hunger pain is described as sticky and burning in character, quite similar to the pain experienced in an open wound in other parts of the body. Pain in ulcer has long been thought to be due to the irritation of a secretion rich in pepsin and HCl on a raw surface but pain may be just as severe in cases with low or even anacidity. Relief from alkalies appears to be just as great in the low acid cases as in the high acid cases and relief is just as great from lavage, diet and antispasmodics in the high acid cases as in the low acid cases. Since hyperacidity is not found in all cases it cannot properly be considered more than merely one of the factors entering into the causation of the pain phenomenon; neither can the myogenic origin of the pain be accepted as a uniform factor, since pylorospasm and hypermotility of the gastric musculature are sometimes found to be conspicuously absent. Ortmayer thinks that pain and peristalsis are probably coincidental and doubts Carlson's theory. I believe that the character of the pain is more or less determined by the factor entering most largely into its production in any given case. It is not always possible to determine clinically this factor, but careful study will establish it in a large percentage of cases. If gastric analysis shows a high hydrochloric acid content, if the discomfort is relieved by the ingestion of alkalies and there be no gastric retention nor hypermotility in x-ray study, the reasonable conclusion is that the pain in that case is due to the high acidity. I believe that the most important factor in the pain of ulcer is motor dysfunction. Peri-gastritis, periduodenitis and various types of adhesions not infrequently are important factors in its production. The pain in the shoulder is often as severe as that in the epigastrium. It generally occurs only in the right shoulder and usually appears, with reference to time, with the abdominal pain but is usually described by the observing patient as originating in the shoulder rather than occurring as a radiated pain. A consideration of the distribution and function of the phrenic nerve serves to throw light on this condition. Its division into terminal branches occurs in the region of the diaphragm. It receives sympathetic fibres on its way through the diaphragm and also in the lower portion of the neck. The terminal branches of the phrenic nerve distributed to the serous membrane covering the diaphragm on the abdominal side are purely sensory nerves. The sensory supply of a circumscribed skin area in the region of the shoulder is derived from the anterior median and posterior supra-clavicular nerves which arise from the fourth cervical segment. Consequently when the phrenic terminal branches of the diaphragmatic peritoneum are irritated the supra-clavicular nerves are likely to be irritated also by way of a centripetal tract. Carlson thinks there is evidence indicating the absence of pain sensation in the normal gastric mucous membrane and that pain is not experienced until there is destruction of cells and nerve endings. He says the normal mucosa can be pinched, rubbed, cut or stuck without any pain. Muscular contractions cause pain and distension with food, air or water, likewise will cause it. A number of observers have found a lack of true tactile sensibility of the mucosa.

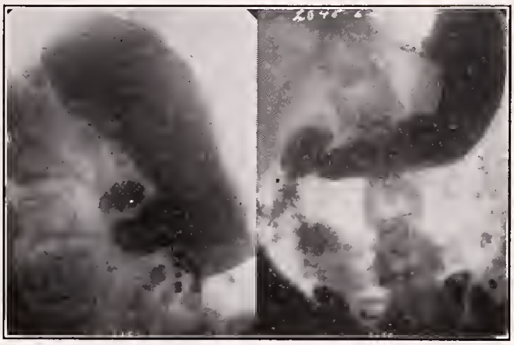
Fig. 14. Case No. 3450B—Cardiospasm, gastrospasm, and retention. Irregular duodenal bulb and tenderness over cap.

Probably the most difficult clinical picture is presented when an ulcer occurs simultaneously in the stomach with one in the duodenum. This condition to the casual student may not appear to be a common one and yet the study of statistics seems to establish the fact that it occurs in about 10% of ulcer cases. When pain lasts longer than six to seven hours, when it begins within two hours after the ingestion of food and when vomiting between three and four hours after meals does not secure relief from the pain, the presence of a duodenal ulcer in conjunction with gastric ulcer should be suspected.

Table No. 6.

Relative Frequency of Doudenal and Gastric Ulcers.

Duodenal	73.9%
Gastric	22.8%
Both	4.3%

(Moynihan's Review).

THE ACIDITY FACTOR.

There is significance in the statement by Judd that a satisfactory explanation of the cause of jejunal ulcers is best found in the cause of the original ulcer for which the gastro-enterostomy was done and concludes that the principal cause of the secondary ulcer is the action of the acid gastric secretion. In more than 60% of gastro-enterostomy cases at the Mayo Clinic the acidity was high before the operation and remained high after it. In all of Patterson's series did this hold true. Diamond thinks peptic ulcer occurs often in persons with constitutional anomalies attributable commonly to instability of the autonomic nervous system. This instability results in irritability of the neuro-muscular apparatus of the stomach which manifests itself in increased peristalsis, gastrospasm and high acidities. If an abrasion occurs in the mucosa of such an individual the increased tension and attrition of a "hyperacid chyme against such an abrasion supply sufficient causative

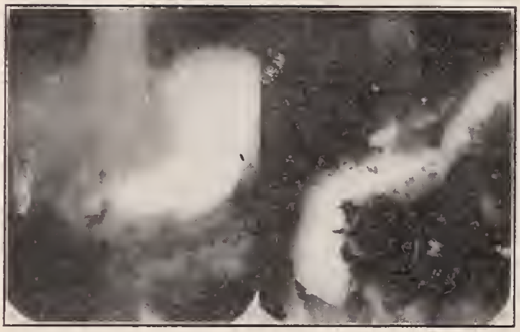

Fig. 15. Case No. 3450-L—Retention. Further study showed negative gall bladder and appendix. Constant irregularity of bulb.

agents for the development of ulcer.'' The vagatonic status persists after the healing of the initial ulcer and the neurogenic, secretory and motor disturbances continue. In a series of 34 cases of peptic ulcer studied by Crohn and Reiss, all with high acidities, 21 remained high in spite of treatment. Such persistence can be explained only by admitting a continuance of ulcer predisposition. Levine, in discussing the circumstances converting an erosion into an ulcer names the ''acid gastric juice'' as the first factor. A jejunal ulcer does not occur until the surgeon permits, with a gastro-entrostomy, the acid chyme to pass directly into the jejunum instead of being normally neutralized by the bile, pancreatic and duodenal juices. Why does not a jejunal ulcer follow a gastro-enterostomy in cancer of the stomach unless the low or anacidity be a factor? Gastric ulcer is rare in pernicious anemia; is the usual achylia responsible? Aschoff says ''chronicity of ulcers depends on the action of the gastric juice and Bolton says ulcer is caused by the hydrochloric acid which delays the healing of erosions, destroys its base, covers it with a necrotic membrane and stimulates the formation of sclerotic fibrous tissue. That hyperacidity may persist for years and cause no ulcer is true but if the other features of a neuro-musclular irritability obtain, such as spasm, retention, etc., ulcer is likely to occur It is also true that ulcer may occur with achylia gastrica, but the ulcer may have occurred before the achylia obtained; it is also probable that an ulcer in achylia may have been caused by an infection which occurred because of the achylia. Ivy found that on ingestion of bacteria ulcer formation occurred more readily when the acidity was low or absent.

Hyperacidity is only a symptom of disturbed function and should not be considered as an entity, Carlson thinks there is no hyperacidity found in disease which cannot be duplicated by an acid grade of the same type in health. An interesting question yet awaiting final arbitrament is how does a high acidity supervene. Does the gastric juice possess a constant acidity as it flows from the glands as Pavlov thought or, is the high acidity merely lowered to normal ranges automatically by the influx of duodenal juice into the stomach as Boldyreff thinks? He calls this hypothesis the self regulation of gastric acidity and explains its mechanism on a two fold basis; one, that the high acid reflexly stimulate an increased production of pancreatic juice and bile, the other, that the highly acid chyme provokes a reversed persistalsis carrying the alkaline secretions of the duodenum into the stomach until and when the acidity is lowered to normal levels (0.15 to 0.2%) the pylorus closes. Rehfuss thinks this explanation is correct and concludes that high acidity in disease occurs as a result of interference with this automatic regulation function. Bolton and Goodhart studied this feature by making fractional chlorine estimations and found that when the total chlorine content reached a certain amount, regurgitation of duodenal content occurred bringing down the acid curve to normal levels. Three distinct mechanisms are concerned in this reciprocal relationship between the stomach and duodenum; (a) the manufacture of the gastric juice; (b) the tone of the pylorus; (c) the production of alkaline secretion poured into the duodenum, chiefly the pancreatic juice. In such a mechanism it is evident that the tone of the pylorus is the governor of the neutralization process as pylorospasm interferes with regurgitation of duodenal content. Pylorospasm can be set up by a local irritation in either stomach or duodenum (ulcer) of a hyperirritability of the vagal autonomic nervous system (vagatonia). Pylorospasm becomes, then, *pyloric block* and again one is reminded of disturbed cardiac physiology with heart block. While it may be true that the gastric juice maintains a constant level of acidity in *health*, I am convinced that *morbid* conditions act as stimulative agencies and must result in hypersecretion. We recognize hyposecretion as occurs in achylia; over and under secretion of other glands, as of the thyroid, is accepted; over and under activity of the motor nerves results in exaggerated or deficient peristalsis or knee jerk; why should the peptic glands constitute the solitary pariah of the body?

Hyperacidity represents an increase in titratable acidity of the gastric juice above normal limits. In determining what is normal one must keep in mind the kind of food used for test meal study. Rehfuss states that the reaction of the stomach to different varieties of food, in health, is specific. The acid response is higher to meats than to cereals and is of longer duration; but proteins have a larger combining power than cereals or vegetables. From the clinician's view point it is of importance in recognizing this specific response on various foods that he use the same type of meal for his studies. The clinician must further recognize that every normal stomach shows a fairly characteristic response to food; while each shows its individual response it is possible to group them and the terms hyper, iso and hyposecretory types have grown out of this grouping. An effort has been made to group the hyperacidities in similar fashion: (1) Larval hyperacidity occurs early in the digestive curve and is probably the result of psychic stimulation largely. (2) An active digestive phase showing an exaggerated acid production during the height of the digestive process; it may be caused by an increased irritability of the secretory structures due to local lesions (ulcer), a reflex stimulation (gall bladder, appendix) or an increased vagal tone, constitutional (vagatonia). (3) A tardive hyperacidity occurring during the terminal digestive period with the peak of the acidity reached toward the end. This type occurs in about 75% of duodenal ulcers; gall bladder disease comes next in frequency. Pylorospasm is usually present in this type though it is found in some rapidly emptying stomachs. This group of hyperacidity should always be carefully studied for a pathological basis. (4) An interdigestive hyperacidity may be present because of duodenal ulcer, toxic or neurotic states. Pyloric stenosis is usually present when this phase is persistent.

Finally, in connection with the role which acidity may play in ulcer formation it is interesting to recall that the acid producing cells of the stomach line 60% of the lesser curvature and 80% of the greater curvature, while the antrum is practically devoid of these cells. Eighty-five per cent of gastric ulcers occurs at the pylorus, antrum and distal four-fifths of the lesser curvature, while 66% occurs on mucus membrane which does not elaborate HCl. It is significant that the majority of ulcers occur in that portion of the digestive tract where there is greatest circulatory, muscular and neurological activity and least where there is greatest digestive function. It might be fairly stated that where there occurs dead gastric cells, HC1 and pepsin, an ulcer results from local tissue digestion but given similar conditions with absence of HC1 and instead a regurgitation of duodenal juice containing pancreatic enzymes, and ulcer will ensue just as surely.

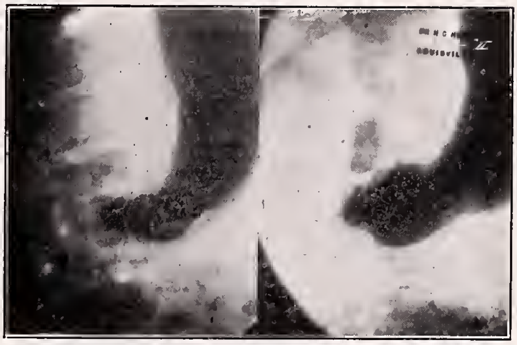

Fig. 16. Case No. 2244—Further study showed 20 per cent rentention with negative gall bladder and appendix. Constant irregularity at pyloric ring and bulb.

ANALYSIS OF CASE STUDIES

In an effort to determine the validity of the classification of vagatonia one hundred cases seen during the past two years have been selected for study. These cases presented many of the symptoms ordinarily seen in ulcer cases but a diagnosis of ulcer was excluded by physical and laboratory study, X-Ray examinations and observation of the clinical course. It is readily admitted that errors may have occurred in the final conclusions but in only two cases was the accuracy subject to reasonable doubt when the time came for final classification.

The following table gives in a condensed form the salient features of this group.

TABLE SEVEN

Analysis of 100 records designated as non-ulcer cases but presenting many of the symptoms commonly found in ulcer.

Age	17 to 74 years
Male	51%
Female	49%
Duration	3 weeks to 25 years
Pain Epigastric	
Severe	20%
Dull	10%
Burning	10%
Soreness	12%
Fullness	9%
Pain In Abdomen	
General	10%
Cramping	15%
Discomfort	14%
Time With Relation to Meals	
No relation	36%
Before 20-30 Minutes	14%
Immediately	14%
After 20-30 Minutes	20%
After 1-2 Hours	16%
Nausea	62%
Vomiting	15%
Constipation	72%

Weight	
Loss	85%
Gain	2%
Stationary	10%

Means of Relief	
Food	10%
Alkali	40%
Fasting	25%
Emesis	10%
Lavage	3%
Rest	12%

Laboratory Study HCl

High	Low
108°	33°

Hyperchlorhydria	67%
Hypochlorhydria	2%
Blood	13%
Mucus	25%
Test Meal Recovery	20-420 cc
Retention	87%

X-Ray Study	
Hypermotility	44%
Spasm	40%
Irregularity	20%
Niche	0

The range in age, especially with respect to advancing years is interesting. It is commonly stated that vagatonia is a manifestation of early manhood or womanhood and that the symptoms grow less with age, usually disappearing, yet we find the rather extreme age of 74 at one end of the group. Another surprising feature turned up when the percentage of sex was determined. Vagatonia is considered a masculine tendency but 49% of my cases were females. One wonders if this is because being an usual type of nervous make up it more readily constitutes a clinical illness in the female necessitating relief. In classifying a duration as of three weeks only, it must not be construed that a vagatonic state is acutely acquired but that the patient merely so dated his incapacity. The underlying habitus existed prior to such illness merely requiring the occurrence of some activating agency which facilitated its rising to the surface of clinical recognition. It must also be emphasized that histories are often inaccurate even after careful inquiry; this is especially true with regard to time. Another feature, quite difficult of classification is pain. What is mere discomfort to one is emphasized as definite pain by another and yet, if vagatonia be a type, one would expect more uniformity in description by its members. Again, it is surprising how vague many patients are in locating their discomfort in vagatonic conditions. I regard this tendency toward indefiniteness as of considerable value in differentiation between ulcer and vagatonic states. Location is more definite in ulcer. Thirty-six per cent stated that meals seemed to bear no relation to their pain. This would seem to be of fairly easy understanding in those cases with pylorospasm and it is interesting to note that 87% showed retention. This retention was usually very definite and often reached figures high enough to arouse suspicion of a pathological condition at the pylorus until studies of residue were made, retention meals given and X-Ray study instituted. Opaque meal retention was uniformly less in degree as well as incidence, than was test meal retention. The difference in weight, the surface effect of barium and the effect of manipulation by the Roentgenologist during fluoroscopic study are no doubt factors in determining the difference in opaque meal and test meal retention. Since spasticity of portions of the intestinal canal is a part of the clinical picture of vagatonia, it is not surprising that 72% of the group were constipated. That 62% should have complained of nausea is rather unexpected and is a bit difficult of explanation. The means of relief as listed in the table are to be understood as being statements of the patients as to what means were successful in their effort to secure relief from their discomfort prior to being studied. I was rather surprised to find that a larger per cent than 28 were not relieved by fasting. The finding of blood in test meal study should raise the suspicion that an ulcer is present yet in the 13% of cases showing blood, no evidence of ulcer either in the stomach or duodenum were found. Blood in the table is to be interpreted as occult blood and it is not an unexpected finding where pylorospasm and hyperacidity exist, for dilatation of the mucosal capillaries obtains in such a condition. There was one case in this group in which blood was found present where the explanation was thought to rest in a protein sensitization with gastric neuro-vascular symptoms. While the test meal recovery showed a range from 20 to 420 cc, very few showed a test meal content under 100 cc and

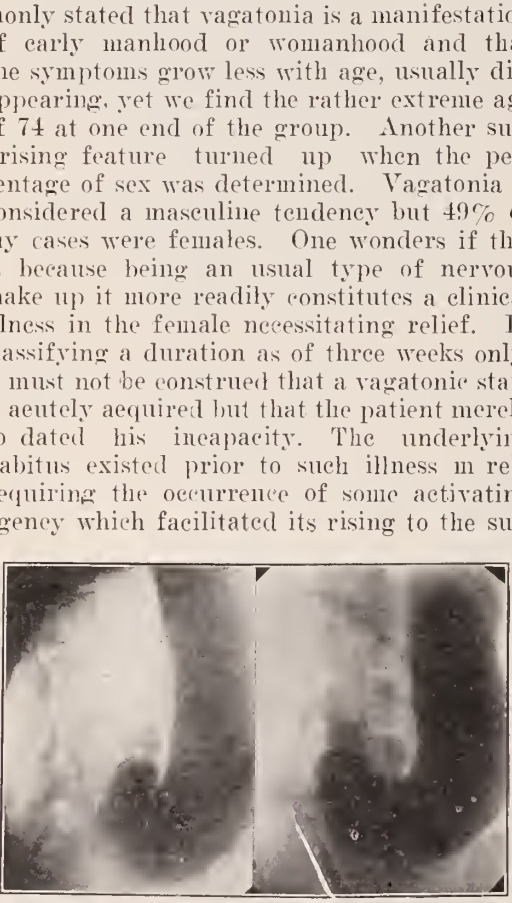

Fig. 17. Case No. 3392—Hyperperistalsis, constant irregularity at pyloric ring, normal bulb, 5 per cent retention, spastic colon, negative appendix and gall bladder.

the great majority ran over 200. As already stated in our studies in normal subjects with the cereal test meal recoveries of from 65 to 85 cc were usually found and this is considered as average normal limits. In quite a number of the cases where the X-Ray study showed hypermotility, cardio or pylorospasm with irregularities in contour, these were made to disappear in subsequent studies after atropinization.

The following resume of a few case histories is made for the purpose of illustrating still further the close analogy so often obtaining in studing the records of ulcer as compared with non-ulcer cases.

1. Case. No. 3377—Gall bladder disease, profuse, repeated hematemesis with no gastric pathology found in diagnostic study or at operation.

Female, age 43, with a history of digestive upsets for two years, had three profuse hemorrhages with vomiting of blood in a period of four months. There was 30 cc of fasting stomach contents with an HCl of 22. (Fig. 6). X-Ray study showed no irregularities, filling defects of stomach or duodenum, retention or tenderness. (Fig7). Tardy filling and slow emptying time of gall bladder with dye study. Appendix not visualized. Subsequent cholecystectomy was done and a chronic gall bladder disease with adhesions was found. Stomach and duodenum negative for ulcer.

2. Case No. 3550-W—Vagatonia with test meal retention, hyperchlorhydria, tenderness and a normal gall bladder and appendix.

Female, age 35. History of digestive disturbances since 1911 when appendectomy was done. Complained of epigastric and abdominal tenderness, acid regurgitation, etc. (Fig. 8). X-Ray study showed prepyloric tenderness, no filling defects, retention, normal cap, a normal gall bladder and visualized appendix. (Fig. 9).

3. Case No. 2138—Appendicitis, chronic. Regurgitation and vomiting of food, daily, hyperchlorhydria, a negative stomach, duodenum and gall bladder.

Female, age 47. History of daily vomiting of food, no nausea or pain except in right hypochondrium at irregular intervals. Menses regular and accompanied with eruption on forearms and hands, eczemic in appearance. Duration of digestive symptoms six years with increasing severity. (Fig. 10). X-Ray study showed hypermotility, pylorospasm, ptosis, no irregularities or filling defects, cap normal, appendix not visualized and tenderness over this area, gall bladder normal. At operation a chronic appendix with moderate adhesions, normal stomach, duodenum and gall bladder was found. Emesis relieved. (Fig. 11).

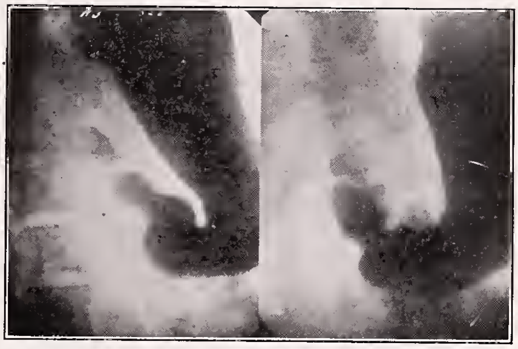

Fig. 18. Case No. 3450G—Irregularity at pyloric ring, slight retention, spastic transverse and descending colon. Visualized appendix, negative gall bladder.

4. Case No. 2876—Vagatonia with hyperchlorhydria, retention, pylorospasm, epigastric pain, normal appendix and gall bladder and negative ulcer findings. Paralysis agitans.

Female, age 63, with a history of vertigo, flatulence. eructations, epigastric discomfort relieved by fasting and soda, loss of weight, all of three years duration. Test meal study found HCl 80, mucus, no retention or blood. X-Ray study showed no filling defect, with retention; no evidence of gall bladder or appendiceal disease. (Fig. 12).

5. Case No. 3722—Vagatonia, hyperchlorhydria, mucus in stools, constipation, eructations, epigastric soreness, ptosis and spastic colon; no retention or filling defects.

Female, age 41, with history four or five years in duration of digestive upsets. No serious illness except tonsillitis during childhood. Test meal study showed no retention, HCl 62, no blood or mucus. X-Ray study showed moderate visceroptosis, normal peristalsis, no pylorospasm, irregularities or filling defects; cap normal. Gall bladder and appendix negative. (Fig. 13).

6. Case No. 3450-B—Duodenal Ulcer with gastrospasm, retention, secondary anemia and hypothyroidism.

Female, age 51, with a history, 5 years in duration, of irregular periodic digestive disturbances consisting of sense of fullness, epigastric discomfort, eructations, anorexia, constipation; there was no history of actual pain or of blood in stools. She had had an appendectomy at 32, perineorrhaphy at 37, rheumatism at 36, removal of coccyx with abscess at 46, and tonsillectomy at 48. Test meal showed retention (180 cc) HCl 41 and no blood. Basal Rate minus 32%. X-Ray study showed cardiospasm, gastrospasm, retention (40%), and irregular duodenal bulb and tenderness over cap.

The blood study showed

Reds	3,950,000
Whites	6,500
Hemoglobin	65% (Dare)
Color Index	0.83

Stained Specimen:

Small Lymphs	28%
Large Lymphs	9%
Poly.	60%
Eosin	1%
Trans.	2%

Reds normal in shape and size, pale; a few nucleated cells seen. (Fig. 14).

7. Case No. 3450-L—Duodenal Ulcer with recovery under medical care.

Male, age 31, with history of epigastric discomfort 2 to 4 hours after meals, nausea, vomiting, loss of weight. Test meal study showed HCl. 75, retention 270 cc, blood and mucus negative. X-Ray study showed irregularity of bulb, constant filling defect, retention, negative gall bladder and appendix. Gain in weight 15 pounds in 3 months. Fig. 15.

8. Case No. 2244—Peptic Ulcer, cholecystitis, chronic; hyperchlorhydria, retention, filling defect, increased Icterus Index, epigastric tenderness.

Male, age 41, with a history, 20 years duration, of discomfort in epigastrium and right hypochondrium, no nausea or vomiting; frequent transduodenal drainages. Test meal study showed HCl. 51, no mucus or blood; X-Ray study showed 20% retention, constant irregularity at pyloric ring and bulb, negative gall bladder and a visualized appendix. Icterus Index 30. (Fig. 16).

9. Case No. 3392—Peptic Ulcer, prepyloric, suspicious blood picture. Hay fever.

Female age 40, with history of digestive upsets of several years duration, hunger pain, generalized tenderness. Test meal showed HCl. 60, retention 250 cc, mucus in stomach and stools, no blood. X-Ray study showed hyperperistalsis, constant irregularity on lesser curvature, prepyloric, 5% retention, spastic colon, negative gall bladder and appendix. (Fig. 17).

10. Case No. 3450-G—Vagatonia, hyperchlorhydria, rentention; nephritis, chronic, glomerular and hyperplasia of thyroid and adenomata with hypothyroidism.

Female, age 52, with history of digestive disturbances of two years duration; no serious illness. Test meal study showed HCl. 53, no retention, blood or mucus; X-Ray study showed irregularity at pyloric ring (spasm) negative gall bladder and a visualized appendix. Basal Metabolism rate minus 18%. (Fig. 18).

SUMMARY

1. This study is based on,

(a) The anatomical distribution of the vagus nerve and the physiology of the digestive tract.

(b) A digest of the literature covering causation and symptomatology of ulcer.

(c) An analysis of the clinical experience of the author as an internist and covers the years 1924-25-26.

2. Cases which came to be classified at once as peptic ulcer for management medicosurgically are not included as no definite data was usually obtainable prior to personal study, neither does it include cases of ulcer of acute onset having no background of digestive upsets.

3. An attempt is made to answer the following questions:

(a) Is there a clinical basis justifying acceptance of the term Vagatonia in medical nomenclature?

(b) How close does analogy obtain between cases designated as Vagatonia and frank Ulcer?

(c) Is unquestioned differentiation between them possible, preoperatively?

(d) Is Vagatonia a pre-ulcer phenomenon ranking, in importance, with infections etc., primarily or secondarily gastric?

(e) If it be admitted that Vagatonia is, etiologically, a potential ulcer state should surgical attack be characterized as but a primary and purely Peptic Ulcer therapeusis?

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Sixty Years of Antisepsis—It was but sixty years ago on December 12th, that Joseph Lister, celebrated British surgeon proved that stitch abscesses could be avoided by using sterile sutures. It was also in 1876 that Lister published his first paper on antiseptic surgery, following his success in the use of sterilized sponges and instruments and the application of dressings saturated with an antiseptic to cuts and wounds.

In order that students of hygiene, biology and allied sciences may have these facts brought to mind the American Association of Medical Progress has sent a memorandum giving the important facts to all teachers of these subjects.

LIVER DIET IN PERNICIOUS ANEMIA.*

By CHAS. N. KAVANAUGH, M. D., F. A. C. S.,

Lexington Clinic, Lexington.

Minot and Murphy in 1926 reported remissions by the use of a special diet in forty-five cases of pernicious anemia observed essentially in sequence, which had been maintained in all except three patients who discontinued the diet during the six weeks to two years under observation. These patients were given a diet composed especially composed of foods rich in complete proteins and iron—particularly liver—and containing an abundance of fruits and fresh vegetables and relatively low in fat.

Later, in 1927, these same authors reported their experience from observations on over seventy practically consecutive cases showing that the daily ingestions of a relatively large amount of mammalian liver (calves preferably) can increase very markedly and promptly the red blood corpuscles of essentially all patients with pernicious anemia where the count of their red corpuscles are low, thus indicating that liver alone is the essential requisite of the diet and if added in sufficient quantity (120-240 gm. cooked calf's liver or beef liver daily) to the diet of patients with typical pernicious anemia, will produce a remission with striking improvement in health. An increase of the red blool cells from approximately 1,500,000 to 3,000,000 per c. m. in about four weeks is the rule. Symptoms and signs due to combined cord lesions, if pronounced, usually remain present, although rather marked improvement is seen in some cases. When a great number of transfusions have been given regeneration of red blood cells by the bone marrow is apt to be slow and unsatisfactory.

The nature of the material effective in pernicious anemia is being investigated by various workers. In a recent paper Minot reports that "A non-protein, either insoluble, alcohol precipitable fraction of beef liver has been isolated, which has caused in each of eight cases a prompt, marked, temporary increase of reticulocytes and a rapid rise in the number of red blood cells. For beneficial results the patient is required to take daily only 10 gms. of the substance. An adequate, well-balanced diet should always be prescribed."

Whipple thinks that a deficiency of erythrocyte reticulum material may be present in pernicious anemia. In Minot's experience there occurred with extraordinary regularity a prompt, temporary, often marked increase of the reticulocytes, followed by a rise of the red blood corpuscles, which almost always continues to normal.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

Further observations have showed that a diet rich in fat does not inhibit the response of the reticulocytes; that in comparable cases of pernicious anemia the rise of the reticulocytes tends to occur sooner and to be more marked, the greater the amount of effective liver substance fed; that the reticulocyte increase is approximately inversely proportioned to the height of the red blood corpuscle count and that a less favorable prognosis than usual is indicated where there is a relatively slight and delayed response of the reticulocytes.

The length of remissions following ingestion of the proper amount of effective liver substance is unknown. Present experience indicates that this diet should be continued even though the red cell count remains high.

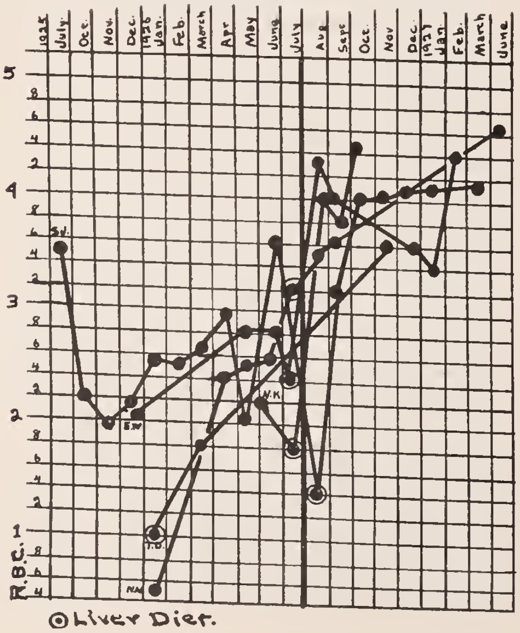
The daily requirements of the special diet have been stated as follows:

1. Liver (calves', beef, chicken) or kidneys (lamb) freshly cooked. At least 120, preferably 200 or more, grams (cooked weight). Cook without fat; broil, bake, boil, mince, or make into soup.

2. Fruits, preferably fresh — especially peaches, apricots, pineapple, strawberries, oranges and grapefruit—about 100 grams. Raisins desirable; allow them to be eaten freely.

3. Red muscle meat, trimmed free of fat, freshly cooked; 100 grams or more. Beef heart desirable.

4. Vegetables containing 1 to 10 per cent of carbohydrate, preferably fresh; cooked or raw. Not less than 300 grams. Lettuce, spinach, asparagus, cabbage and tomato are especially desirable.



5. Fats restricted, not over 70 grams. Avoid cheese, bacon, fried food. Allow but little cream and butter, and not over one egg. Use mineral oil for salad dressings.

6. Avoid grossly sweet foods, yet allow sugar sparingly.

7. Starchy foods, as cereals, potato, breads, add to suit individual desires, but not to exclusion of the requirements given above. The starchy foods best be crusty or dextrinated. Whole wheat toast is desirable.

Occasionally a patient is observed who is unable to eat such a diet because of weakness, sore tongue, or marked distaste to liver. In these cases the liver may be ground up into a jelly and given by stomach tube. There is evidence that a more potent effect may be secured in this manner.

Our experience with liver feeding in pernicious anemia will be illustrated by five cases purposely chosen from our records because of the fact that they were under observation prior to August 1926 and following liver feeding have experienced immediate definite remissions, which have persisted for more than one year. Two cases will be presented in detail and the results in the other cases will be summarized in a table. All five cases have improved markedly and at the present time are apparently well and are attending to their former duties.

Case 1. Miss N. N., 27 years of age, first observed September 22, 1924. At this time she complained of alternating diarrhoea and constipation. Red blood cells 4,600,000, hemoglobin 70¼. Gastric analysis showed an absence of free hydrochloric acid. Improve on hydrochloric acid. Was observed again February 19, 1926. Had discontinued hydrochloric acid during summer and since September 25th had frequent attacks of indigestion and diarrhoea. During the previous two months had complained of marked weakness, numbness in legs, and had been unable to work. She had lost but little weight, appetite good. No soreness of tongue. Slight swelling of feet at times. There were no cardio-respiratory or renal symptoms.

Physical Examination. Well nourished white girl with marked lemon-tinted skin. Mucous membranes pale. Sclera clear. Lungs negative. Heart normal in size with no murmurs. Blood pressure 115-70. Spleen not palpable. Liver not enlarged. Neuro-muscular system negative. Genitalia normal. Nose, throat, teeth and ears negative.

Blood Count: red blood cells 1,100,000, white blood cells 6,300, hemoglobin 20 per cent, color index 0.9. Blood smear—megaloblast few, anisocytosis iii, poikilocystosis iii, polychromatophilia i (on basis iv). Differential—poly. 57, lymph. 43.

Wassermann: negative.

Van den Burg—delayed direct—icteric index 10.

Stool: negative on two occasions for occult blood; microscopic examination negative.

X-Ray of Gastro-Intestinal tract: negative.

Fractional Test Meal: no free acid.

Progress and Treatment: The time of observation can be divided into three periods: the first, of 16 months, during which she had little or no treatment; the second, of 6 months, during which she received dilute hydrochloric acid, iron and arsenic injections and transfusions with little improvement in symptoms; the third, of 8 months duration, during which she has ingested large amounts of calf liver, etc. and has apparently completely recovered. Numbness in legs has disappeared.

Case 2. Miss S. J., 27 years of age, stenographer. First observed July 11, 1925. One year previously had had attacks of diarrhoea lasting 2 weeks. During past 3 years has been easily fatigued and has had to rest often because of weakness, diarrhoea, "upset stomach," and sore tongue. Mother has acromegaly. Family history not remarkable.

Physical Examination: Well nourished. Mucous membranes pale. Tongue shows inflammation characteristic of pernicious anemia. Thyroid isthmus palpable. Cardio-respiratory negative. Liver and spleen normal size. Neuro-muscular system negative. Ears, nose and teeth negative. Septic tonsils.

Blood Count: red blood cells 3,500,000, white blood cells 7,700, hemoglobin 72 per cent, color index 1.0. Blood smear—anisocytosis i (3 months later microcytosis, megalocytes, aniscocytosis iv, poikilocytosis ii). Differential—polys. 45, lymphs. 55.

Wassermann: negative.

Stool: negative.

X-Ray of Gastro-intestinal tract: negative.

Fractional test meal: free hydrochloric acid absent.

Progress and Treatment: The periods of observation in this case can be divided into two parts: the first, of one year, during which she had intensive treatment for anemia with little or no results; the second, of one year, of liver therapy followed by immediate marked remission with the clearing of all symptoms and an apparent complete recovery.

Seven other cases of pernicious anemia on liver feedings, who have been under observation from six weeks to one year, have showed prompt evidence of blood regeneration; have obtained complete remissions with marked improvement generally; and now have an average count of 4,000,000 red blood corpuscles per cubic millimeter.

Failure in the treatment of pernicious anemia is due either to an incorrect diagnosis or to failure of the patient to take an adequate amount of liver. If little or no improvement is noted at the end of six weeks, these two factors should be borne in mind and the patient studied more carefully. A leukemic myelosis, a leukocythemic stages of leukemia and sprue are perhaps the most frequent conditions confused with pernicious anemia. In practically all patients with pernicious anemia there is a marked and prompt increase of the red corpuscles with a rapid and striking symptomatic improvement that is most gratifying. According to Minot we may, in the near future, be able to prescribe a small amount of a fraction, rather than large amounts, of liver.

THE BLEEDING UTERUS.*

By J. B. Lukins, M. D., Louisville.

Uterine bleeding is a common condition met in every day practice. It is often overlooked or neglected by the busy doctor, probably due to the fact that woman normally has a periodic discharge of blood known as menstruation. No attempt will be made in this brief discussion to distinguish between menorrhagia and metrorrhagia as the same cause may produce either or the conditions may coexist. An inflammatory condition, neoplasms or retained secundae may either cause periodic bleeding abnormally prolonged or continuous hemorrhage.

The control of uterine hemorrhage depends entirely on the cause. The day has long since passed when any intelligent doctor will undertake to treat a bleeding uterus without first making a diligent search for the cause.

It is well known that ergot and other styptics can only be of the most temporary benefit. The many remedies and the different forms of treatment offered for the relief of hemorrhage of the uterus is only proof of the fact that in its proper control we have a real problem.

The woman in the Bible who had had an issue of blood for twelve years had no doubt been treated by all the doctors available in that time, without benefit, before applying to the Master and being healed by the Divine touch.

A pretty definite idea as to the cause is always essential.

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*Read before the Surgical Section of the Kentucky State Medical Association at Owensboro October 3, 4, 5, 6, 1927.

At the Woman's Hospital in New York a study of one hundred cases was made and classified as to cause. This classification I am using as a basis for this discussion because it so nearly coincides with the conclusions found after a study of my own cases. When we really study uterine bleeding as to cause, we find out some interesting things often contray to our previous fixed ideas.

CHART No 1.
100 cases of Uterine Bleeding, Classified in 6 Groups.

Group	Etiology	Pathology	Number of Cases
1.	Pregnancy,	Absorption, Uterine Mole, Hydatidiform Mole, Epithelioma. Diseases of Placenta. Pathologic Implantation of Ovum. Ectopic Gestation. Malposition of Placenta.	13
2.	Infection,	Endometritis, Metritis, Salpingitis, Oophoritis.	23
3.	Neoplasms of Uterus & Ovaries,	Polypoid conditions of Uterus and Cervix, Fibroids. Carcinoma and Sarcoma, Polyps, Ovarian Neoplasms.	38
4.	Displacements, Lacerations, Congestion,	Retroversion, Inversion of Uterus, Subinvolution, Lacerations, Prolapsus Uteri.	13
5.	Endocrine Distress,	Hyper-function of Ovaries. Hypo-thyroidism. Disease of Hypophysis and Adrenals, etc. Disturbed balance of Function of Ductless Glands.	9
6.	Constitutional causes & Blood Discrasias,	Cardio-Vascular Disease, Nephritis, Pthisis, Infectious Diseases, Rheumatoid conditions, Anaemia, Chlorosis, Pernicious Anaemia.	2
		Records incomplete..........	2
		Total	100

Abortion, either threatened or incomplete, is perhaps the most frequent cause of uterine bleeding. In any case between puberty and menopause, to fail to give proper consideration to this as the cause, would often be detrimental to the patient and embarrassing to the physician. A careful history of the case and a bimanual examination will usually determine whether or not the suspicion is correct.

Ectopic pregnancy is rarely diagnosed until rupture takes place which is signalized by either pain or hemorrhage or both. This bleeding may be a sudden gush of blood or a continuous hemorrhage lasting several days, It is significant that in every case the patient will tell you that she fainted or felt fainty. about the time of the onset of other symptoms.

Uterine bleeding, due to infection of the tubes and ovaries, is always accompanied by pain and often with fever. It is usually in the form of a prolonged menstruation. The pain and swelling appearing periodically with a bloody discharge.

Endometrial pathology is evidently the most frequent cause of uterine bleeding in infection of the female generative organs. We find this frequently in connection with subinvolution and retroversion. Bleeding from a case of this type is more apt to be over a greater length of time, but not great in amount. It is said that it is characteristic of hemorrhage due to hypertrophy of the endometrium, that it does not clot. A polypoid condition of the endometrium has been found to occur in about 20 per cent the cases.

In very recent years the teaching has been that uterine curettage is almost a useless operation. Since we are learning to look for definite pathology and a definite cause in every case, it is evident that the curet becomes to us very useful. In a very small percentage of cases in which endometritis is the main cause of the bleeding, curettage will effect a cure and in a larger percentage of cases it will help to establish a definite diagnosis. The endometrial scrapings should always be examined by a competent pathologist.

In this chart as perhaps in any group of hospital cases, neoplasms head the list as to frequency of cause.

Polyps, fibroid, carcinomas and ovarian cysts are all conditions in which hemorrhage is a very pronounced symptom. The bleeding from a polyp is often very severe, bright red in type and is frequently found in single girls. It is easily diagnosed and can usually be removed with a curet or snare. The hemorrhage from a fibroid is usually irregular and very rarely has any distinguishing feature. A submucous fibroid causes the most profuse hemorrhage.

It is often difficult to determine by bimanual examination if the tumor is very small and the cause of the bleeding is misinterpreted. Trying to be conservative, especially in young women, we have in a few cases advised the less radical measures of curettage and small doses of radium, only to find later that a hysterectomy had to be done.

Hemorrhage at the menopause is usually due to some pathological condition. Fibroids. beginning carcinoma, endometritis, displacements and constitutional changes being the most frequent. Given a case with complete cessation of bloody discharge at the usual age for memopause, then with the return of a bloody show in a few years, the cause is nearly always carcinoma. rather than fibroid. When we recall that one third of all cases of cancer originate in the uterus and that from fifteen to eighteen thousand women die in the United States every year from this disease, it is apparent that too much emphasis cannot be placed on the early diagnosis.

When we wait for the sure signs such as a profuse watery discharge, foul smell and loss of flesh, we have waited too long for either radiation or surgery to be of much benefit.

A brownish stain, or a constantly recurring bloody mucous discharge is usually the first symptoms of carcinoma of the cervix and should lead us to a thorough investigation.

Ovarian cyst is the cause in a large percentage of cases in young married women. This, however, is often not the sole cause. It is frequently associated with some endocrine disturbance or with endometritis. Experience has shown that it is very necessary to do a curettage as well as to remove the cyst. When removal of the ovarian cyst is the only operation done, it is well to keep the patient under observation for a few months and possibly administer some ovarian extract. A few such cases have returned with irregular bleeding and it was necessary to use radium in small doses.

Displacements and lacerations are nearly always found in married women who have uterine bleeding, but they alone are rarely the cause of hemorrhage. Some neoplasm or some type of infection are also usually present if there is marked hemorrhage.

Cardio-Vascular disease and nephritis existing in connection with uterine bleeding are usually found in women of middle age or past. Tuberculosis is a condition that must not be overlooked. It is most often seen in women under thirty-five years of age. The hemorrhage may occur from the uterus of a patient who has pulmonary tuberculosis or the tuberculous infection causing the hemorrhage may be local, tubes, ovaries or endometrium.

Uterine bleeding in a patient with a rheumatoid condition, is very intractable. The cause is usually very difficult to discover and nothing less than radical measures bring about relief. The blood dycrasias belong in class to themselves and can only be diagnosed by repeated blood examinations.

Concerning the endocrine disturbances we have yet no definite knowledge. We know that the presence of the ovaries alone does not insure the menstrual function, but that absence of the ovaries preclude the advent of the process. The presence of both the uterus and ovaries may not bring about the appearance of the menstrual flow. We see from these facts that the function of menstruation depends on other factors than the mere presence of the uterus and ovaries.

To menstruate normally a woman must have uterus, ovaries and the proper stimulus from some other source which has been hypothetically accepted to be the ductless glands. There is no one gland which furnishes this stimulus, but the thyroid, pituitary, adrenals and ovaries all play a part in it.

Uterine hemorrhage of toxic origin is characteristically exemplified by the metrorrhagia of thyroid hypofunction. The excessive bleeding occurs most frequently at the pubescent and preclimacteric period, there may or may not be a palpable enlargement of the thyroid. These patients bleed and grow fat, yet notwithstanding their excessive loss of blood, they rarely show a marked reduction in hemoglobin. The most striking example of this type of cases is found in single girls.

The bleeding in these girls may assume any type and occaionally may be alarming.

Bimanual examination reveals nothing Continuous or frequently recurring hemorrhage forces upon us the fact that something must be done.

A radical pelvic operation in single girls should if possible alway be deferred until other measures have failed to give relief. In a case recently it was necessary to resort to blood transfusion and later to hysterectomy. This case had been curetted and 50 mgs., of radium used on two occasions. In this type of case it is difficult to use sufficient radium to properly control hemorrhage without bringing about an artificial menopause and rendering the woman sterile. The effect of a small dose of radium is to check the hemorrhage without interferring with the menstruation, but the relief is only temporary and when sufficient quantity is used for permanent benefit, the effect on the ovaries is so definite that the woman is almost positively sterile.

There is no doubt that in radium we have a very valuable agent for controlling uterine hemorrhage due to ovarian and endometrial incoordination. Radium controls hemorrhage so far as the endometrium is concerned by producing atrophy both of glands and stroma, but especially of the former. Hence, its great value in checking hemorrhage due to hypertrophy. As regards the ovaries, radium appears to destroy the Graafian follicles, but does not interfere with the stroma.

In small fibroids and in beginning carcinoma of the cervix, radium is a valuable adjunct to surgery and in a certain percentage of cases if used early, may be entirely relied upon. I would not attempt to decry the merits of radium in gynecology.

I have seen some splendid results from its use and on the other hand, some miserable failures. It should not be used if there is any inflammatory condition present in the pelvis and a hysterectomy is usually preferable in young women to a partial or complete destruction of the ovaries which is caused by a large dose of radium.

It will be seen from a study of the table and from the cases reported, how many and varied are the causes of uterine hemorrhage and it becomes readily apparent that no one method of treatment will bring relief in all cases. In other words there is no cure-all. Every case must be studied separately and a diligent search made for the cause. The method of treatment best suited to the individual case should be the one of choice. The cases where the problem of diagnosis and treatment is the greatest are these where gross physical signs are absent and where hemorrhage may almost be termed functional in type.

DISCUSSION

G. A. Hendon, Louisville: The subject which the essayist has introduced is one that covers such a wide range of territory that it is impossible to more than skim the surface and call attention, by way of emphasis, to some of the very important points that are presented.

For the sake of brevity in a discussion of this sort, we might divide the cause of bleeding uterus into the obvious and the obscure. The obvious causes, of course can be readily imagined. The obscure causes are not so easy.

Practical classification from a purely therapeutic standpoint would be to say that uterine hemorrhages which occur when the menopause should have been established are due in almost every case to a fibroid interstitial in character. That places it in the obscure classification. That means to interpret as fibroids those that are very small and situated in the body of the uterus. We find they will cause a continuation of the flow after the usual climacteric period, and it is in cases of that kind that the curette has been so frequently found a failure. It is, therefore, I think, poor practice to ever curette a uterus that has continued to bleed after the time of menopause.

In cases of that sort you will nearly always find—in fact, in my experience you will find—an interstitial fibroid on the removal of the uterus, a fibroid not larger than your thumb situated in the wall of the uterus. This will escape detection and yet cause hemorrhages to continue.

Another practical classification. would be those in which the uterus bleeds after the cessation of the normal menstruation, after a woman has ceased to menstruate, and then resumes mentruation after a period of six months which is always due to cancer. I found two exceptions to this rule in my rather limited experience. However, in those two exceptions there existed an empyema of the uterus. For some reason the os became completely closed and the uterus was filled with a purulent material that disappeared as soon as the os was dilated and the uterus properly drained. Those were the only two instances where mentruation ceased over a period of six months and then resumed without being malignant in character.

Another point that can be used as practical, is the fact that those women who have hemorrhaes at the menstrual period, I mean have excesive flow, have fibroids as the cause of that excess. Those who have hemorrhages between the periods of menstruation have intraligamentous cysts. You will find that sufficiently frequent to serve as a working base upon which to found your diagnosis as to the cause of the hemorrhage. In those hemorrhages which occur between the menstrual periods you are dealing with intraligamentous cysts, and those which occur at the periods are due to fibroids. The obvious causes, of course, it is not necessary to discuss. We all know about those, where there are large fibroids, pieces of placenta, and puerpural causes are easily observed and can readily be detected.

The other two classifications, I think, are of sufficient importance to merit some consideration. I thank you! (Applause.)

John R. Wathen, Louisville: Dr. Lukins has been very complete in his classification as to the cause. I was especially interested in Dr. Hendon's remarks.

I want to mention another cause of uterine hemorrhage which has occured in two cases in the last two years, i. e. diabetes. One woman was about forty-eight years of age and the other in the neighborhood if fifty-two, who had not had the menopause. These women would go for three or four months and not have any hemorrhage, and then all of a sudden they would bleed almost the entire month. We couldn't determine the cause even after careful examination.

Blood examination in one showed the blood sugar to be 385, and in the other the blood sugar was 417. They were put on a diabetic diet and placed on Insulin. In less than five days both hemorrhages were stopped,and they have never had a hemorrhage since. They are taking Insulin today.

I was interested in this because we stumbled on it. These two cases occurred in my practice, and I think it is well worth looking into when you can control hemorrhage and control it very promptly. (Applause).

J. B. Lukins, Louisville, (in closing): In presenting this subject there wasn't any thought of bringing anything new on the subject either in medical diagnosis or in treatment but rather to get it under the classification to be workable.

We usually know what to do at or near the menopause, or past the menopause, regardless of whether fibroids or cysts caused them to bleed, but the cases that give us the most concern are in single girls or young married women where we hesitate to do radical surgery.

The main reason for this subject was to emphasize the point there is no one way of treatmenut or cure. It is just as wrong for the surgeon to say that every case must have a hysterectomy as it is for our friends to say that every case may be cured by radiation. (Applause.)

ENDOMETRIAL TUMORS*

By W. O. Bullock, M. D., F. A. C. S. Lexington Clinic, Lexington

When I first considered presenting the subject of my paper I did not realize how little was actually known about the condition and when I discovered its status I hesitated to bring it before you, but reconsidering I thought how little is actually known about any live subject. In fact it is the unknown element that makes the subject a live one. I then tried to visualize this world when every vital problem had been worked out to its ultimate conclusion and every problem of the universe solved. The picture is not a pleasant one. In the unknown lies much of the inspiration of religion; it is the unknown that lures the adventurer and that enslaves the scientific investigator to life long toil, so I decided that after all I would stick to it and in presenting the picture of this interesting phase of surgico-pathological development, the back ground and line drawings are the facts—the colors, the shades and the shadows are represented by the deductions, assumptions and theories.

Endometrium: This layer of mucous membrane lining the interior of the uterus differs from mucosa elsewhere in there specific respects.

1. In regard to its desquamation and reproduction.,
2. In the fact that there is no submucosa.
3. In its tendency to invade the underlying tissues.

Essentially this membrane is made up of columnar or cuboidal epithelium, underlying which is a very cellular stroma which is characteristic and which is found nowhere else. Simple tubular glands run down from this membrane and penetrate between the fibers of the uterus. The stroma is very cellular containing a small amount of connective tissue. Blood vessels are numerous, but are usually collapsed when the membrane is examined. The stroma surrounds the glands and continues with them in between the fibers of the non-striated muscles of the uterus. The uterine muscle itself constitutes the muscularis mucosae. While this is the essential structure, variation occurs periodically every twenty-eight days.

Activated by the genetic urge one or more of the half million of the primordial follicles in the human ovary multiplies and differentiates its cells to produce a mature Graafian follicle which crowding its way to the surface thins out the tunica and casts its precious product, the ovum, into the coelomic cavity. Certain of the remaining cells containing lutein form the corpus luteum which in case the ovum is not fertilized remains in an active state until the death of the ovum—a period of about two weeks.

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*Read before the Surgical Section of the Kentucky State Medical Association at Owensboro October 3. 4 5 6. 1927.

For the first four days after menstruation the endometrium is at rest, the gland tubules are thin and slightly curved and the stroma compact. For the next five to eight days, corresponding to the maturation of the follicle, there is marked thickening of the membrane, elongation of the glands, stroma still compact; with the discharge of the ovum and the development and activity of the corpus luteum the change in the uterine mucosa is enormous. The glands begin to secrete, become straightened out and distended, decidual cells are formed, cells of the stroma multiply and are more widely separated owing to exudation from blood vessels, and glucose and lipoid are present. With the death of the ovum all this elaborate structure, this nest to receive the egg becomes useless and is sloughed off, the dead cells being washed away in the blood of menstruation leaving only the basement membrane.

Endometrial tissue having identical structure and presenting the same cyclic changes corresponding to function has been noted in numerous locations outside its normal habitat. To classify these misplaced masses of tissue, which are perfectly normal in structure and function, has been a matter of considerable difficulty to pathologists. Who, however, after due concessions to known facts have admitted them as adenomyomata with reservations. Endometrial tumor, however, without sticking strictly to the meaning of the word tumor, is, according to Nicholson, perhaps a better expression.

The tendency of this tissue of the endometrium to invade the underlying muscle has already been noted and it was Cullen who showed that the adenomyomata of the uterus were the result of this form of invasion. Progressive symmetrical enlargement of the ut r-us associated with painful and excessive menstruation is often due to adenomyoma. The invading cells here as well as outside the uterus, as we shall see later, stimulate the non-striated muscle to hypertrophy. This is probably due to the periodic changes which take place in the glands and stroma. Sections of these tumors will show throughout the uterus tubules identical with endometrium, larger or smaller cavities containing blood or blood residues. In some cases these cavities are quite large; in others, ducts capable of releasing the contained blood into the body of the uterus are present. The origin of these tumors is now universally conceded to be uterine endometrium. In practically all of them direct communication from the endometrium can be traced.

Outside the uterus, as well as within that organ, masses of misplaced endometrium are encountered. They are found in the round ligaments and the groin, in the ovary, in the intestine, at the umbilicus, in abdominal scars, and occasionally in the vulva and vagina.

Three interesting facts should be here noted:

1. The condition occurs only in women—never in the male sex.
2. It has never been observed before puberty and only in an altered and atrophic form after the menopause.
3. No case has been noted to occur above the level of the umbilicus.

Difficult indeed is it to explain the presence of these tumor masses in such ectopic locations nor has a satisfactory explanation yet been brought forward to explain all of them and indeed it may be possible that they may all not be the result of any one underlying condition. Three theories have been advanced to account for the existence of these formations.

First: Inasmuch as the endometrium is a development from the Mullerian duct, various attempts have been made to explain the condition as a faulty development from this stalk. On account of its early proximity and the fancied resemblance of certain cell formations to the urinary glomerulus other equally enthusiastic advocates have advanced the Wolffian ducts as the probable source of some of these growths. To discuss these problems of dysontogeny would lead me into perilous paths, suffice it to say that only endometrial tumors of the groin and round ligament may possibly be explained as having arisen from a vestige or rest from the Wolffian duct and only those in close proximity to the uterus and tubes may be assumed to arise from errors in development of the duct of Mueller. Nor does it to me seem probable that such errors have anything to do with the formation of these tumors.

Second: The implantation theory, sometimes referred to as the epigenetic theory, was brought forward by Sampson first to explain the origin of the so-called chocolate cysts of the ovary. It is assumed by Sampson that as the result of back-flow, menstrual blood passes out of the tubes into the abdominal cavity. This condition he claims is not infrequent, that it may be due to polypoid thickening of the uterine mucosa, obstructing tumors and malposition, that the menstrual blood passing out through the tubes into the peritoneal cavity contains endometrial cells and tissue not entirely destroyed by the process of menstruation and that such cells locating or falling upon suitable soil take root, live, grow and having the invasive properties of original tissue pass into the substance of the ovary; that this being true endometrial tissue goes through the same cyclic changes as does the uterine mucosa, the accumulated blood not being able to escape is retained in the form of a cyst, each successive menstruation resulting in further expanding the endometrial lining of the cavity and increasing the amount of retained menstrual blood. He further claims that these cysts rupture and scatter their endometrial contents throughout the pelvis, the implantations falling into the culdesac attach themselves to the intestinal wall, rectum and sigmoid and even on the surface of the uterus; that where the soil is favorable, these secondary implantations grow and produce their kind, being often multiple and recognized as small thickened puckered areas containing altered blood and surrounded by many adhesions. In fact the production of adhesions is universal in this diffuse type of endometrial tumors. This theory is easy to understand, seems rational, but so far it has never been shown that menstrual blood can be made to produce in animals the condition he describes or that any of the cells in menstrual blood possess sufficient vitality to live and grow in normal tissue, although it has been shown by Jacobson that implantations from the uterine mucosa develop into tumors identical with adenomyomata. To explain the occurrence of the tumors in the groin he assumes that this may occur through implantation, through an open inguinal ring, or by metastasis through the lymphatics. Sampson's work on the whole is very convincing and has gained converts from the protagonists of other theories, but many ''died in the wool'' pathologists frankly say they do not like Sampson's theory.

Sampson has shown that it is possible to express blood and cancer cells through the tubes by what he describes as the piston action of a radium tube being pushed into the cervix of the uterus; Jacobson has shown that uterine curettings transplanted into the abdominal cavities of monkeys can produce tumors containing endometrial tissue; uterine curettement is a very frequent operation; it seems strange indeed that Sampson should have overlooked the possibility, if not probability, that fragments of uterine mucosa from curettement might not be similarly forced out into the cavity. In this way it would have been unnecessary for him to have invoked the much contested factor of retrograde menstruation and to me it seems much more probable that such implantations come from the former source than from the latter. How often have we seen the operator after a suspension operation preceded by a curettement make a pelvic examination to prove the correctness of the position. In this bi-manual examination with the uterus containing blood and endometrial fragments, it would be the simplest matter for such fragments to be expressed into the abdominal cavity and since it has been proved that uterine scrapings grow when transplanted, I think we need look no further for the explanation in many of these tumors nor do I think the fact that more than half of the recorded cases of endometrial tumors in abdominal scars were associated with operations to correct malpositions of the uterus is without significance.

To explain the occurrence of uterine tissue in tumors at the navel one is by necessity excluded from accepting either of the before mentioned hypothesis. Sampson studiously avoids subjects saying he has never seen a case. This is probably as good a way as any.

Third: This brings us to the third explanation, or the theory of peritoneal metaplasia. It has been known that under certain conditions the cells of the peritoneum will develop into tissue structure not unlike normal endometrium. It is a fact that the peritoneum is present at or very close to the location of all of the forms in all the locations where these aberrant growths occur. Furthermore in quite a number of cases, cells of the tubules of the endometrium have been traced and found to be continuous with the cells of the peritoneum. It is argued that the peritoneum is the direct representative of the coelom in the embryo, from which both the ducts of Mueller and the Wolffian ducts are derived, that the cell and cell structure are products of environment, that what a cell may produce at one time, it may produce at another time under similar conditions, that conditions similar to those which originally produced endometrial tissue may be reproduced by some external irritation or influence. If it can be demonstrated that retrograde menstruation is of sufficiently frequent occurrence, it may be that menstrual blood constitutes the specific irritation to bring about this particular form of metaplasia.

Finally we come to masses of endometrial tissue located in abdominal scars as in the other forms of endometrial tumors. These growths are only present in the female, never occur before puberty, and never occur above the level of the navel. They are usually associated with painful menstruation and are usually painful during that period and show enlargement. A large percentage of them have been found to occur after fixation operations for misplacement of the uterus ,all but two have followed operations on the pelvic organs, two of them occurred after appendectomy. It would be interesting to check up such cases and find out in how many of them curettement had been done at the time of the operation. It has been claimed that retrograde menstruation following operation was succeeded by implantation in the incision. It has been likewise explained by the fact that the surgeon's needle has carried tissue from the uterus into the wound. None of these explanations seem to me to fully explain the conditions.

DISCUSSION.

J. R. Wathen, Louisville: I think Dr. Bullock has presented a most interesting report, and if I understand the doctor correctly these are largely some of his own cases. I have personally not seen any of these transplants, especially in the abdominal scars.

The chocolate tumors of Sampson have been attracting attention for many years. They have been little understood.

He has certainly presented a unique subject and one that as a future attraction will command more attention than it has in the past, and I think he is to be congratulated on the beautiful presentation, and I think he has been fortunate to obtain these cases because very few of us have had the fortune to run across them.

W. O. Bullock, Lexington (in closing): I didn't expect much discussion on the subject because it is one that is infrequently met with. I have been unusually fortunate in having encountered some of these tissues myself.

About the only thing I would care to add to the paper would be that so far as we know this is merely a matter of scientific interest. The tumors themselves are innocent in their character, and I do not believe they are any more liable to malignant change than is the endothelium of the normal uterus.

New Diphtheria Prevention Poster Available—"My Birthday Wish" is the title of a new diphtheria prevention poster just issued by the State Committee on Tuberculosis and Public Health of the State Charities Aid Association.

The poster, illustration which is copied by permission from the magazine "Children", depicts a toddler trying to blow out a single candle on a birthday cake. Beneath is the caption, "Protect Me From Diphtheria" and the subtitle "and all babies under five." The posters may be obtained at a cost of $3.00 per hundred or ten cents each on cardboard by writing to the Association at 105 East 22nd Street, New York City.

HYPERTHYROIDISM AND MYOCARDITIS*

By W. O. Johnson, M. D., Louisville.

We are gradually awakening to the goitre menace, realizing that the results of hyperthyroidism are of such manifold importance that the problem of treating the condition is no longer a matter of merely local interest, but is a subject of national concern.

In the so called non-goiterous districts, in which the South has always been included, we find a decided and amazingly progressive increase in the number of goitre patients yearly. In these non-goiterous districts bizarre types of goitre are far more common and are more liable to go longer undiagnosed and untreated, than are the goitre cases of a goiterous district where the disease is more typical and clear cut and the seriousness of the malady is more generally understood.

One of the most striking and earliest manifestations of the thyroid disturbance is its effect upon the heart. In studying the literature on the subject the importance and seriousness of this was first mentioned by Parry, (1) who, in 1786, cited eight cases, presenting a systematic description of a peculiar disease of the heart, attended with exophthalmus and thyroid enlargement.

In 1802, Flajani, (2) by whose name the disease is known, recorded heart disturbances in a disease characterized by tumor in the anterior part of the neck.

We find that in 1828, Adelmann, (3) was the first to use the word, "Goitre heart," in his description of these cases.

Von Basedow, after whom the disease is named, in 1840 knew of the heart disturbances in a disease he characterized by goitre, cardiovascular symptoms, and exophthalmus.

In 1841, two Dublin physicians, Sir Henry March, (5) and McDonnel, (6) each presented two cases, and McDonnel stated that Graves and Stokes were the only physicians knowing anything about the disease. While Graves (7), in 1845 and Stokes (8), in 1854, gave what was the most complete description of the disease, at the time, Stokes stating that the point of departure of the disease is the heart, after which come the peculiar symptoms of goitre and exopthalmus.

In 1859, Egeberg (9), Lubarsch (10), and Nathanson (11), each presented cases of the disease entity, and gave a more complete description of the symptoms associated with the disease.

In 1853, Naumann (12), describes a case of heart pains with enlarged heart, associated with goitre, while Taylor (13), in the same year, was the first American to write on the disease.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

While in 1857, Markham. (14), describes a case ending in heart failure, an autopsy showed marked cardiac changes. And in same year Prail, an ophthalmologist, showed that in only two out of nine cases examined by him there were no heart symptoms when goitre and exophthalmus were present.

In 1858, Bigelow (15), reported a case to the Boston Medical and Surgical Journal, with a daguerreotype of the patient.

However, the great importance of cardiac disturbances in goitre were not appreciated until 1877, when Rose, (16), emphasized them in his paper, "Goitre death and the Radical operation for Goitre," before the Berlin Medical Society. In the same year, Lockbridge (17), an American proposed naming the disease, "Cardiac Exophthalmic Goitre."

It was in 1878, that Germain Soo (18), emphasized that the association of the irregularity of the heart with exophthalmic goitre had frequently been overlooked.

And in 1899, Kraus (19), was the first to introduce the conception of the toxic goitre heart.

From this time until 1906, there were very few publications of importance, but following a symposium on thyroid disease in Berlin, the modern period of cardiac study of the disease began. However, these cardiac irregularities were not well understood until 1910, when Bamberger (20), reported 3 cases and collected 21 cases, from the literature, giving electro-cardiographic studies of those cases. And in 1818, Krumblear (21), reported electro-cardiographic studies of 51 cases. And in 1918, Krumbchan (21), rearrythmias ventricular extra systolies, auricular flutters, auricular fibrillaion and delayed conductivity. This is the largest series reported to this time.

Since then there have been numerous excellent monographs and reports on the subject by Kocher (22), Sattler (23), Boothby (24), White (25), and Aub. Hamilton (26), Kerr (27), Hausel (28), Willius (29), Lahey (30), Philips (31), and others.

The review of the literature impresses one with the knowledge of the frequency of heart symptoms, associated with hyperthroidism, and also shows the gradual develpment of the disease entity.

After studying the 2167 reported case of cardiac arrythmias in the literature, one is struck by the negligence with which this important subject has been handled, especially from the pathological side. There are many very complete clinical and physiological studies of the subject, but less than 4 per cent of the essayists mention studies of definite pathology. Some merely state that the heart is enlarged and shows evidence of fatty infiltration. The majority, however, do not mention the pathological picture found in cases autopsied.

It is my belief that with a clear cut, definite pathological knowledge of the disease as a back ground, we can at least arrive at a more uniform method of treatment of hyperthyroidism, and from this better knowledge of the pathology possibly build up the chains in the morphology of the disease.

At present the etiology of hyperthyroidism is unknown or manifold, but it is inferred by some to be the disturbance of the endocrine system in which the thyroid gland plays the predominating part.

The term Hyperthyroidism is used in this instance to include two diseases of the thyroid gland, i. e. Exophthalmic goitre and toxic adenoma. In the latter the effect is much more insidious, but seems to be more specific in its action on the heart muscle. The syndrome of hyperthyroidism is believed to result from the presence of an excessive amount of thyrotoxin in the tissue, this being the active principle of the thyroid gland.

There has been advanced two main theories as to the production of heart symptoms, associated with hyperthroidism, (1). The mechanical theory, (2) The toxic theory.

The mechanical theory was first advocated by Rose (16), 1877. He believed that tracheal stenosis is due to an enlarged thyroid gland, which changes the pressure relations in the thorax during inspiration with a resulting secondary dilatation, and hypertrophy.

Kocher (32), believed that the condition is due to congestion of the large veins by continued pressure of the thyroid, giving circulatory disturbances, while Wolfler (33), stressed the hindered expiration due to enlarged thyroid.

Bauer (34), held that the continued pressure of the thyroid on the nerves to the heart caused its degeneration. Others, however, believed that increased metabolism, producing cardiac over work, brings about the degeneration of the heart muscle, without attempting to explain the cause of the increased metabolism and mechanism of production of over work.

Loefer (35), explains cardiac disorders mainly by compression of the right vagus and mechanical stimulation of heart depressors as a result of the enlargement of the thyroid. He also believed the compression of the vessels in the neck, especially the carotids, to be a further co-operating factor in the production of cardiac disorders.

Renner (36), cites that the dilatation and hypertrophy results from the vaso-dilatation associated with goiters, together with the increased time activity of the heart, preventing the cardiac chambers from fully emptying the flow with each systole.

Hall (37), believes that temporary weaking of the myocardium is due to diastolic shortening and if permanently driven the heart muscles "rag out" into atrophy.

Boas (38), advances two theorics, first that there is a tremendous dilatation of the arteries and veins of the thyroid, with an increase of 5-10% in blood volume flow, through this the thyroid causes a short circuit of the blood flowing to the neck, and increases its load on the heart, in the same manner as an arterio-venous aneurism. And secondly the heightened oxygen consumption 5-25 per cent, caused by elevated metabolism, brings about an increased minute volume flow of blood 25-60 per cent greater than normal. This additional work is done by increased minute volume flow as shown by Plasch (39) that the systolic output is relatively unchanged, so the increased minute volume flow is due to rapid heart beat, accompanied by the little reduction in the systolic output per minute; this causes the work per minute to be greater.

However, the mechanical theory does not explain the imperceptibly enlarged thyroids in the most severe cases of exophthalmic goitre, the presence of symptoms without cardiac enlargement, the general vaso-motor instability and relaxation, the presence of huge goitres without cardiac symptoms and so forth, and therefore it has become almost extinct, since the development of the toxic theory by Kraus, (19), in 1899.

Kraus (19), and Lubatsch attributed the thyrotoxic heart to the quantitatively changed secretion, and an over function of the thyroid.

DeCyon (40), and Minnich maintained that the thyroid is degenerated in goiterous conditions, and that the product of degeneration affects the cardiac nerves, while Bircher, (41), agreed with them, but believed that the product affected the myocardium directly.

Bauer (34), Gley (42), and Cleret, quote Lampe (43), and Lieseberg (43), and others are just as certain that the cardiac condition is due to a qualitative change in reaction, or a dysfunction of the thyroid. While Mc-Carrison (44), and others believed that the symptoms are a direct remit of intestinal toxemia.

Bigler (45), and others believed in the toxic theory, but give no definite clue as to probable origin of the condition.

Plummer (46), advocates the theory that the disease is a toxic unsaturated iodine compound, and that the addition of iodine renders it a saturated non toxic or normal compound. After watching the improvement of patients after the adminstration of Lugol's solution one is certainly markedly impressed by the theory.

Assuming that the cardiac symptoms are due to a toxemia, and the nature of the toxin is unknown as yet, the point, at present is to show that the patient with cardiac symptoms has a toxic myocarditis, and that if the toxin is removed, the heart returns to normal functioning while a delay in the cure of this disease will result in a serious and permanent damage to the heart.

The effects of thyroid intoxication upon the heart differs greatly. In young individuals, with a heart previously damaged, there appears to be no cardiac changes, as shown by the fact that, no matter how intense the degree of thyroid toxicity may be, it may exist to a point of complete disability and death, and yet at no time, aside from accelerated rate show any signs of the heart varying from normal, and at autopsy no characteristic changes are found other than slight dilation and hypertrophy for the age. While on the other hand, in older patients, and particularly those with previously damaged hearts, one susceptible to arthritis, tonsilitis or chronic bronchitis, the thyrotoxins produce a profound cardiac effect. With the onset of fibrillation and with few toxic symptoms, these patients show cardiac symptoms with a rapid decompensation, or slow progressive rate of failure, resulting, at last, in complete disability, the patients bed-ridden, due to heart conditions, the final results of untreated hyperthyroidism. It is in this class of patients that the etiology of the heart condition is so readily overlooked, and permenant changes are allowed to take place in the myocardium.

From the clinical side we know that the goitre follows vascular changes, and syphilis, as the most common cause of heart disturbances, and that 20-35 per cent of goitre patients entering hospitals have already established organic myocardial changes, for were it not for the cardiac symptoms, very few goitre patients would present themselves for treatment.

We will not consider at this time a discussion of tachycardia, nervousness, and other symptoms, but will infer that the cardiac symptoms begin first as a toxic condition which increases the mechanical work of the heart. This in turn, to compensate for the increased work, begins to dilatate and hypertrophy. Thus far there are no definite signs found in examination of the heart, but when this work is allowed to continue, with the heart in a fatigued condition it becomes far more susceptible to the toxins than any other time. The toxins also seem to be more active on those hearts that have been previously damaged by rheumatic conditions, vascular changes, and old valvular lesions.

A study of patients entering a goitre clinic will show that from 15-20 per cent of the patients have auricular fibrillation upon admission, and that this percentage is nearly doubled in 48 hours after operation, indicating the low cardiac reserve of these patients and that the slightest strain will produce symptoms of decompensation. Which is indicative of broken cardiac reserve, and yet good functional results are still able to be obtained by arresting the disease process.

At first the fibrillations are usually paroxysmal, but, if allowed to remain untreated, become permanent and nearly always progressive, and in a great many instances dominate the picture of the disease so much that the exciting cause may be overlooked.

From a pathological viewpoint, we have 3 kinds of myocarditis: (1) *Thrombotic* usually from occlusion of end arteries, angina pectoris is an example, (2) *Infections,* resulting in suppurative areas in heart muscles in cases of septicemia etc., and (3) *Toxic,* as exemplified in cases of diphtheria and scarlet fever, each of which give characteristic microscopial findings, as summerized by Councilman (47), Mallory and Pearce.

1. Degeneration of the myocardium is one of the most common conditions.

(a) Fatty degeneration in majority of cases.

(b) General affection of myocardium.

(c) Focal affection of myocardium.

The fatty degeneration seems to proceed the more advanced forms which lead to a distruction of the muscles.

2. Fragmentation and fractional degeneration of muscles are often found.

3. Acute interstitial lesions.

(a) Focal collection of lymphoid cells in tissue accompanying degeneration of myocardium.

(b) Proliferation of cells of connective tissue.

4. Thrombosis, due to primary necrosis of endocardium. Vessels play but little part.

If we examine the hearts of hyperthyroid patients in the early stages, we find that there are no characteristic changes in the heart muscles, and note usually only the presence of dilatation and hypertrophy. But with the beginning of auricular fibrillation there seems to be a rather characteristic change taking place, and we can say that the auricular fibrillation can be taken as a definite evidence of organic changes in the myocardium.

Hasginoto (48), has reproduced hyperthyroidism in dogs by feeding thyroid substance and thyrotoxin, and has shown hearts so treated are more vulnerable to toxic agents than normal.

We know that auricular fibrillations can be produced by fradization of an area in the auricular muscle, and if, by experimentation, hearts can be rendered susceptible to poisoning and auricular fibrillation, then we may assume that the toxin produces the same results as does the cardiac current, that is, it causes a temporary disturbance in the normal synchronous cardiac impulse by producing areas of poisoned cells, which block the passage of the impulse at this point, breaking the continuity, and causing disturbance in rhythm, producing auricular fibrillation, which progresses, if the exciting cause is not removed, and dominates the whole symptom complex with evidence of cardiac decompensation.

The examination of hearts obtained at autopsy from cases dying a cardiac death, associated with hyperthyroidism, will practically always show moderate dilation and hypertrophy of both chambers, with an average of 5-10 per cent increase in weight above the normal average. And a patchy fatty infiltration is found in the heart muscles.

Boas (38), Terry (49), Symmers (50), Goodpasture (51), and others have shown that microscopically these hearts have small areas with interstitial or perivascular round cell infiltration scattered through the heart muscle. The muscle fibres are hyperchromatic, and occasionally there are granular degeneration or hyaline replacement of the muscle bundles.

Comparing these facts with the summary of the findings in heart muscles obtained from people dying from diphtheria and scarlet fever, one is readily lead to infer that the condition of the hearts of hyperthyroid patients may be the result of toxic degeneration.

To the above summary of pathological findings, I wish to present three cases, in brief, which will help to substantiate the findings.

Case 1. F. W. M. 32, Negative past history. Rapid, severe, onset, following childbirth, duration 7 months, with goitre, exophthalmus. rapid, regular, enlarged heart, 130 pulse. Loss of 25 lbs. in weight B. P. 146-80. Patient presenting all symptoms of acute hyperthyroidism. Fourteen days preparation with Lugols solution, and condition thought most satisfactory for operation. Subtotal thyroidectory under Gas analgesia and Novocain infiltration local. The patient stood operation well and condition was satisfactory until 32 hours after operation. when evidence of acute dilation of heart suddenly developed, and in 8 hours the patient died from acute dilatation of the heart, in spite of all known forms of treatment.

At autopsy the heart was only slightly enlarged, with a slight dilatation and hypertrophy of both chambers. Microscopic examination: showed muscles that seemed somewhat oedematous and there were occasional increases in fatty deposites. Nuclei seemed hyperchromatic in areas, and small areas of perivascular infiltration of round cells, muscle fibers in areas seemed too take a more homogenous stain than normal.

In this case the heart never developed an irregularity of rhythm, and the rate ranged from 180 to 220 for some time before death, responding to no form of treatment. This case may be classed as the previously undamaged heart in a young person resulting fatally with no explainable cause other than overwhelming toxemia.

Case 2. F. M. 47, History of goitre for 8 years. Had irregular heart for over 1 year. Shortness of breath, nervouness, oedema of ankles, weakness. Loss of 26 lbs in weight in three months. Examination: Adenomatous goitre, enlarged heart, auricular fibrillation. oedema of ankles, evidence of moisture at bases of lungs, and some fluid in abdomen, B. M. R. - 47. Patient was 37 days in preparation for operation, rhythm of heart regulated with Tr. Digatalis; oedema disappeared, condition thought satisfactory for operation. Subtotal thyroidectomy, under gas analgesia and novocain local anesthesia. The patient stood the immediate shock well. but 27 hours after operation developed auricular fibrillation, and in spite of digitalis, narcotics and other recognized treatment for heart failure, she gradually progressed to complete cardiac decompensation, and death.

Autopsy: heart weighted 326 gms. Both chambers dilated and hypertrophied, with a predominance of left ventricular hypertrophy. Some patches of fatty deposits noticed, with areas of fibrous change in muscle wall. Microscopic examination: Fatty infiltration between muscle bundles in areas, apparently swollen muscle fibers, with some areas in which the muscles were replaced by hyaline and fibrous tissue, taking homogenous stain. In some areas the muscle nuclei were hyperchromatic, and there were definite areas of round cell infiltration about the vessels.

The heart here gave greater evidence of a more chronic change, which seemed to be more diffuse in the chambers of the heart.

Case 3. F. W. M. 54, Goitre 17 years. Irregular heart for years, but shortness of breath, weakness and swelling of ankles only for past three months. Practically an invalid for three weeks. Aside from moist, pigmented skin, slight exophthalmus, nervousness and the nodular goitre, the patient's entire symptom picture was that of decompensated heart. This patient was brought into hospital in state of confusional delirium. A temperature of 101°, pulse 160, R. 28 and for days it was thought she would die, but after three weeks she had improved and was sent to a convalescing home.

The heart rate was always irregular and Quinodine was not tried, but large doses of Tr. Digitalis had no effect. After about seven weeks the patient had a sudden decompensation of the heart, and died.

Autopsy: revealed a very large heart, 556 gms. with dilated and hypertrophed chambers, predominence of hypertrophy in left ventricle. Miscroscopic examination: heart muscles seemed rather pale and oedematous, with patches of fatty infiltration and small areas of hyaline replacement of musele fibers, there being a rather granular degeneration of muscles in areas. There were large hyperchromatic nuclei in some of muscle fibers, with a defininite increase in inter musclar fibrous tissue, and an oedema of all tissues, with a rather marked oedema of the brain.

This case had progressed too far for relief by medical means, and if a case cannot be properly prepared medically, the surgical results will at all times be unsatisfactory.

One cannot draw any conclusions from these three cases alone but in association with the findings of others they present a somewhat characteristic pathological picture in the heart muscle which, in many respects, corresponds closely with the heart muscles of toxic myocarditis from diphtheria and scarlet fever, a condition known to be of purely toxic origin.

From this we may infer that the thyrotoxic hearts are only temporary conditions, and are amenable to treatment if the source of the toxin, which we assume to be excreted from the thyroid gland, is removed. Therefore, it naturally follows that the sooner the toxin is removed the less damage will be done to the myocardium, and therefore a permenant cure may be expected.

The above statement is substantiated by the clinical findings of Hamilton (26), Lahey (30), Philips (31), and others who have shown that in from 33 to 65 per cent of the cases of auricular fibrillation associated with goitres, the rate of the heart has returned to normal from 48 hours to 2 weeks after operation, the patients being permanently relieved of subjective symptoms, and within 6 months able to return to their usual occupation.

We know that therapeutic measures directed to the heart are helpful, but only temporary. They are insufficient in that they do not remove the exciting cause. We also know that therapy directed to reducing the secretion of the thyroid gland offers the best results, and is unequalled in its results in any other forms of heart trouble. So the problem resolved itself into a solution by using the quickest and safest method of removing the excessive secretion of the thyroid gland.

It is certainly rational at this time to advise surgery strongly in these cases, for it can be done with 2% mortality or less, and it is the quickest means of detoxicating the individual, for delay in the cure of this disease can only result in serious and permanent damage to the heart.

I am greatly indebted to the Cleveland Clinic and Cleveland Clinic Hospital, in allowing me to study these cases and obtain some of the included data.

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DISCUSSION.

C. W. Dowden, Louisville: With his long connection in Cleveland, Dr. Johnson is eminently capable of presenting this subject. It has great value from a bibliographic standpoint, and it happens to be one of the very few papers on the subject dealing with cardiac pathology. He has purposely avoided the clinical and physiological aspects, and I hope he will not feel it amiss if I touch upon this part of the paper since it must precede the end results which his studies naturally consider.

Frank exophthalmic goiter offers no difficulties whatever in the discovery of the underlying heart symptoms, but in the toxic adenomas particularly we do not have the exophthalmus, we do not have the enlarged gland, and both from the standpoint of the patient and the standpoint of the examining physician the case is frequently thought to be or taken to be one of cardiac disease.

That the cardiac symptoms depend upon the toxin within the thyroid gland seems to be fairly well established rather than any mechanical effect or pressure. If, therefore, the thyroid is not recognized as the underlying cause of cardiac arrhythmia, then the mechanical overwork produced by the toxin will be followed by dilatation, hypertrophy and further susceptibility to the toxemia, and eventually arrhythmias, congestion and even death.

There is no single pathognomic sign of these so-called thyroid hearts, but if we will keep in mind constantly that the increased heart rate is the first sign of increased thyroid toxemia, then we will look for other signs which will help us to arrive at a satisfactory conclusion or at least direct us to the determination of a basal metabolic rate which seems to be a true diagnostic criteria.

We might keep in mind, following this knowledge of the increased pulse rate as possibly coming from hyperthyroidism, that the basal rate ordinarily parallels the basal metabolic rate. There is usually an increased vascularity over the thyroid gland and a marked increase in pulsation of the peripheral artery, particularly the abdominal aorta.

The systolic blood pressure is usually increased, and the diastolic lowered, giving an increased blood pressure. There is frequently a systolic murmur heard over the femoral artery which gives us a pistol shot sound. Up to this point we have a picture of aortic insufficient and the condition is not infrequently diagnosed aortic insufficiency but if you have this trend of symptoms with increased pulse rate and without a diastolic murmur then it is well to give very serious thought to the thyroid.

In addition to this we have the dynamic type of pulse, the cardiac apex is diffuse, we have a murmur in the third left intercostal space, a rough sound over the pulmonic area, frequently a compensating murmur at the apex but all of these signs disappear with removal of the toxin.

Any degree of hypertrophy is very unusual clinically, except in two types of cases. One is in the case with the coincident valvular lesion depending on previous infection, rheumatism, tonsilitis, and so forth; and the other is in the individual who has reached the age in which arterioscleortic degenerative processes are rather common. In those cases they are usually secondary hyperthyroidism to the adenomas which are usually small and cannot be palpated.

Auricular fibrillation usually accompanies the toxic adenoma. The thyroid is very often overlooked and the condition treated as myocardial failure, or the thyroid is recognized but the condition is considered as unfavorable for any surgical procedure.

It would seem, therefore, that the chief reason for overlooking the thyroid as the cause of cardiac disease, or cardiac disturbance, is, first, the fact that the thyroid is not enlarged particularly in the adenomas; second, that the gland is not palpated with the patient in the recumbent posture. If asked to sit up, and by bending forward a little, and having them drink a glass of water the gland can be palpated.

Next, the eye symptoms are usually absent. Finally, I should like to say where surgery is considered, that because there is no enlargement of the gland, and because there is no exophthalmos, you should not be dissauded in your diagnosis if these other symptoms and signs which I have tried to outline are present. (Applause)

F. G. Aud, Louisville: This question is of particular importance to the surgeon because of the fact that most of the cases of goiter that we lose following operation are those that have developed secondary degenerative changes such as myocarditis and nephritis as has been described in this paper.

The mortality in surgical operation for goiter is only about one per cent, but practically all of this one per cent occurs in the class of cases the doctor has described.

Plummer's theory is a very logical one and shows plainly why the iodine is of so much value in the preparation of the toxic goiter for operation, particularly the exophthalmic type.

Lugol's solution has been of such value that ligation of the thyroid artery is practically a thing of the past. Very few men nowadays are doing ligations.

There were one or two things that I wanted to speak about particularly; first, that these cases should be very carefully prepared just as Dr. Morrison has said, before they are brought to operation. This is not always the class of work that falls in the hands of the surgeon. I think many of these cases are so severe, the changes in the heart and kidneys, so marked that it is better to have them in the hands of a medical man who is properly trained to see that they are in condition for operation before it is undertaken. The ordinary case that comes to operation can be prepared perhaps as well by the surgeon as anyone else, but there are cases that are so profoundly intoxicated and that have such marked degenerative changes that they are better prepared by someone who specializes in that line of work.

I always make it a practice, in the very severe cases, to have some heart specialist, someone competent, to judge as to their operability, to prepare these patients and divide the responsibility with me. I think it is very much better.

When these cases are finally ready for operation I think we are able to bring many of them through very nicely under local, without any formerly lost when we tried to force them to take a general anesthetic. There is no reason why the ordinary case shouldn't go through the entire operation under a local anesthetic. If not, the local anesthesia can be used to a certain point, and by the use of a little nitrous oxide and oxygen the patient can be carried very safely through the remainder of the operation. Very few of these cases will have to have ether administered to them. Most of them can be carried through very nicely under local, without any general anesthetic at all. When a general anesthetic is necessary, a little nitrous oxide and oxygen is very frequently sufficient.

L. Wallace Frank, Louisville: This has been a most important paper, and it impresses us with the fact especially when the result obtained in these cases is taken into consideration that we must recognize such types of goiter early. The early recognition, and the elimination of the toxin by thyroidectomy as was pointed out by the essayist, is the only method by which we may obviate those cardiac changes which we know occur in all cases.

There are two definite varieties of toxic goiter. One, to my mind, is a pure hyperthyroidism, that is, the adenomatous goiter. Exophthalmic goiter is, I think, as Plummer has classified it, more of a dysthyroidism and the syndrome is due to the elaboration and absorption of an incomplete thyroxin molecule.

The good results obtained by the administration of iodine in the treatment of this type of case, namely, exophthalmic goiter, is due to the fact that we have supplied iodine which was deficient in the thyroxin molecule and that the gland then begins elaborating the normal secretion. In such cases we see decided results with a rapid diminution of symptoms, consisting of a fall in the pulse and the metabolic rate and a general improvement of the patient's condition.

In the adenomatous goitre, however, such is not the case and should we administer iodine to such a patient over any length of time we increase the symptoms and make the patient clinically worse. To my mind the indiscriminate use of iodized salt has been the cause of a large number of toxic goiters, the toxicity coming on in cases previously adenomatous but non-toxic. There is no question of the fact that the dispensing of iodine by "traveling fakers" has produced toxic symptoms in many who previously had non-toxic goiters.

Probably the hardest type of case to manage from a surgical standpoint is the combined case when not infrequently associated with toxic adenomatous goiters we see also true exophthalmic goiter. Examination of the gland will show nodules, adenomata, that are very evident, and yet we have the exophthalmos and the pulsating gland seen in true exophthalmic goiter. Whether true exophthalmic goiter is a surgical disease is not definitely certain. Of the adenomatous goiter, there is no question; medicine won't cure it. The only way you can get rid of the toxicity is to take out the gland.

As brought out by the last speaker, ligation operations have not been so necessary as a preliminary to thyroidectomy since the introduction of preliminary iodine therapy, but in the combined type of case where we have exophthalmic goiter associated with adenomatous goiter I think superior polar ligation has its place.

In the past six months we have had three such individuals. They improved the first twenty-four hours after being put on iodine and then the symptoms commenced to get worse again with the result that we had to stop the iodine and do a ligation operation. After the improvement following this procedure we then removed the diseased thyroid.

The point I wish to emphasize is this, that we must recognize in the first place that there are two types of toxic goiter, the exophthalmic and the adenomatous. In both we have myocardial changes, in the exophthalmic type iodine may be given with good results, but in the toxic adenomatous case we are simply making the patient worse. Exophthalmic goiter may be a medical condition. Its exact cause we don't know. We do know that the secretion elaborated by the thyroid in a case of exophthalmic goiter is not a normal secretion. If you have ever noticed one develop, as I have, within twenty-four hours after sudden shock with an increase of three inches in the size of the neck and of the shrinking away just as rapidly, one is convinced that its formation is not the same as other goiters and it may be that exophthalmic goiter is a medical condition pure and simple.

Toxic adenoma is a surgical condition, and it is in the toxic adenoma that we see most frequently myocardial changes, because the symptoms in toxic adenomas come on slowly. They are so insidious in their development that the condition isn't recognized as a goiter and, as the essayist brought out and as was emphasized by Dr. Dowden, these patients consult a physician purely for the heart trouble rather than for the goiter. We must be on the watchout for this type of case so that the cause of the trouble may be eliminated early and that we do not fool ourselves by attempting to treat the heart alone and fail to recognize the underlying cause.

C. N. Kavanaugh, Lexington: Dr. Johnson has given us a very instructive and interesting paper. Most cases of hyperthyroidism come to the internist because of annoying tachycardia or irregular heart action. Every effort should be made to study these cases thoroughly and in this the use of the electrocardiograph should take an important place. Sinus irregularities and premature contractions are of little or no significance. Auricular fibrillation, both in transient and permanent forms, and auricular flutter should be viewed with grave concern. Auricular fibrillation is the most frequent form of arrhythmia and after fifty years of age is an almost constant accompaniment of heart damage. Duration rather than intensity of intoxication seems to be the dominant factor in the production of auricular fibrillation. The earlier the cardiac change is recognized the less will be the damage to the myocardium, and the more perfect the restoration to function. At this clinic we see so many cases who have been given digitalis for months to slow down a rapid heart or to change an irregular rhythm whose basic cause is hyperthyroidism. I do not mean to leave you with the impression that digitalis has no place in the management of these cases; there is a definite indication for its use in auricular fibrillation and auricular flutter preceding operative measure. Auricular flutter and fibrillation may be changed back to a normal mechanism by the use of quinidin or digitalis, preferably the latter, but a permanent rhythm cannot be maintained unless the causative factor is removed, depending, of course, on the extent of myocardial damage that has already taken place.

W. O. Johnson (in closing): I feel greatly honored and deeply indebted to the members who were so kind as to bring out the very interesting points in the discussion.

There are two or three other points I wish to emphasize. In the first place although the patient may be brought to the surgeon late, there is only one type of case in which surgical operation is refused, and that is a delirious case. For where you have an uncooperative patient you cannot expect satisfactory results.

Otherwise the patients may be properly prepared, and operated upon with satisfactory results. One should always bear in mind that the longer you leave the patient before operation the less chance the patient has of obtaining a permanent cure. A permanent functional cure can be obtained in early cases and even in very late cases, most surprising results may be obtained.

I do not believe in ligation on the adenomatous type of goitre. First, you have a heart that is damaged and the longer you delay, the greater the damage to the heart; second, they are adults who do not adapt themselves to the new routine when they return home. Third, because once you have prepared them for operation they are in better condition then, than at any subsequent time. For even if you have them in the best possible condition, and they return home they are bound to have experiences in their environment which will always make their condition worse than when they left the hospital.

I believe the patients should be properly prepared and when they are in the best possible condition do a lobectomy or subtotal thyroidectomy, and with the cooperation of the patient, this should be done under local anesthetic.

As regards iodized salt, there was a twelve per cent increase in the number of toxic adenomas that were definitely due to the administration of iodine salts, and it is a definite and distinct disease from the other type of disease.

I had an opportunity of examining 981 children between the ages of eleven and fifteen of which eight per cent showed definite typical adolescent goitres with a corresponding disturbance of the individual. In this case, if we are going to put this eight per cent of marked children in the hands of the grocers instead of putting them in the hands of competent medical men we will not progress very far.

CLASSIFICATION OF HEART DISEASE.*

By John Harvey, M. D., Lexington.

The purpose of this paper is not to present anything new concerning heart disease and its classification, but to draw attention to the importance of a systematic approach to the problem of diagnosis in those patients having symptoms referable to the heart, and in addition to the desirability of a terminology that will merit general use.

In 1921 White and Myers[1] published a classification for the diagnosis of heart disease which they have used in the cardiac clinic f the Massachusetts General Hospital, with the explanation that it had been of such service to them and to others, in the clinical study of patients with heart disease, that a brief paper outlining it seemed desirable. The following year this classification was included in clinical charts described by The Association for the Prevention and Relief of Heart Disease of New York[2], which they recommended for securing information concerning the natural history of heart disease.

In consideration of advances made in the study of heart disease White and Myers[3] have recently revised their original classification, and still more recently (within the past year), because of the widespread recognition of the need for a uniform system of terminology which will meet the requirements, not only of heart clinics and other institutions, but of general practitioners also, the Committee on Research of The American Heart Association has devised a method for diagnosis which the Association has approved and published.[4]

That some generally accepted classification of heart disease is needed scarcely permits argument. The trend of modern medicine is toward the prevention of disease as an ideal, or, failing this, at least to discover disease in its incipiency and to arrest or retard its progress before the patient reaches a state of hopeless invalidism.

Statistics show that in recent years there is an increaseing mortality from heart disease. Whether or not this is because of a lessened mortality from the acute infectious diseases in early life, so that more survive to die of heart disease in later years shall not be considered here. Certainly heart disease is at the present time one of the foremost health problems.

There seems to be no doubt in the minds of many that the available statistics concerning heart disease are inadequate. In a recent publication relative to this subject[5] it is stated that, "Because of varying nomenclature and concepts of disease, as well as differences in the collection and interpretation of facts, most of the published statistical studies of heart disease are of little value," while the statistian of one of the largest life insurance companies remarks[6] that, "The statistics of heart disease are probably the least satisfactory of medical statistics, because of the apparent impossibility of a precise and inclusive definition."

One need, then, for a uniform terminology in the classification of heart disease is to make possible the collection of adequate statistics if progress is to be made in the effort for its control.

The scheme for diagnosis approved by the American Heart Association designates that heart disease be classified under four main headings, as follows:

1. As to the cause.
2. As regards the structural changes present.
3. As to the disturbances of physiological function.
4. As to the functional capacity of the heart.

Complete diagnosis, therefore, is a composite of etiological diagnosis, anatomical diagnosis, and physiological diagnosis.

It is not necessary to enter into details concerning this scheme since it is easily available[4]. I do desire, however, to mention briefly certain of its principles.

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*Read before the Surgical Section of the Kentucky State Medical Association at Owensboro October 3, 4, 5, 6, 1927.

As regards etiology, heart disease may be considered as divided into two main groups. The first group includes the diseases of the heart that are known to be of infectious origin, while in the second group are placed the forms of heart disease that cannot be directly attributed to infection.

In the first group rheumatic heart disease, syphilitic heart disease, and bacterial heart disease, (infection of the heart by known bacteria), are the types more frequently met with; the incidence of heart disease secondary to other systemic infections being less.

The group of heart diseases not directly attributable to infection is largely composed of what is called the degenerative diseases of the heart, such as that due to arteriosclerosis, heart disease secondary to nephritis, and to diabetes, and hypertensive heart disease without generalized arteriosclerosis or nephritis (essential hypertension). This group also includes heart disease associated with various toxic conditions, notably, thyrotoxicosis.

In considering the relative incidence of the various types of heart disease, the statistics of Wyckoff and Lining[7] are of interest. In a careful study of the etiology in 1000 adults with organic heart disease rheumatic heart disease was found in about 25%, syphilitic heart disease in about 10%, and arteriosclerotic heart disease in about 40%: thus approximately 75% of their patients with organic heart disease were in these three groups. Had children been included in such a series it is fair to assume, as is suggested by these authors, that the incidence of rheumatic heart disease would have been greater proportionately.

In heart disease of infectious origin the diagnosis should, when possible, indicate not only the particular infection present, but whether this is active or inactive at the time of examination. If the infection be rheumatic it is desirable to indicate clearly what manifestations of this infection other than cardiac have been or are present.

In bacterial heart disease the causative organism should be specified if determined. During life this can be done with certainty only by demonstrating the presence of the bacteria in the blood stream by cultural methods.

In considering the group of heart diseases not directly attributable to infection, it may be well to say at the outset that there seems to be a growing conviction that certain of the so-called degenerative types of heart disease are indirectly the result of infection. In this group the etiological diagnosis should indicate as clearly as possible what systemic disease is the primary factor in the production of the heart disease.

It is needless to say that the etiology of heart disease cannot be determined in every instance. Fortunately there are many instances in which a careful history and a thorough physical examination supplies ample information for ascertaining the cause. Attention to detail in questioning concerning the occurrence of tonsilitis, of chorea, and of such mild symptoms as joint and muscle pains, including the so-called "growing pains," in the absence of a definite history of rheumatic fever may disclose evidence of rheumatic infection. In the absence of such a suggestive history careful scrutiny of portals of entry, or foci, such as the tonsils, and the sinuses, may lead to discoveries which, together with heart lesions of the type occurring in rheumatic infection, confirms the diagnosis.

By equal attention to detail in questioning, a history of the primary lesion of syphilis is at times obtained when it might otherwise remain undiscovered.

In some instances special methods of investigation yield definite evidence concerning the causative factors. By means of the x-ray, particularly ortho fluoroscopy, information obtained concerning the outline of the heart and great vessels is frequently of value in differentiating etiological types. In the laboratory, in addition to routine examinations, there is obtained information regarding syphilis by the Wassermann reaction; information regarding bacterial heart disease by blood cultural methods; and information regarding nephritis, diabetes, and gout, as possible etiological factors, by chemical investigations of the blood. Use of special methods of investigation is frequently necessary in order to differentiate between some types of heart disease: for example the differentiation of heart disease secondary to nephritis from that due to arteriosclerosis with hypertension, or that due to hypertension without generalized arteriosclerosis may at times be impossible without use of such methods. When confronted by such a situation use of the term "cardio-renal" to constitute the diagnosis, while very convenient, is far from satisfatcory, and an effort should be made clearly to define the primary cause. In the absence of albuminuric retinitis, and nitrogen retention in the blood, or perhaps diminished phthalein elimination, nephritis as a primary cause of heart disease is questionable, though the urine contains much albumin and many casts.

The second component to be considered in arriving at a diagnosis in heart disease, the anatomical, requires little comment. As has been mentioned by White and Myers[3] until a comparatively few years ago the diagnosis of the structural changes present was the only one made in a large percentage of cases, little attention being given to disturbances of cardiac function and the etiology of the condition, both of which are frequently more important items in the diagnosis than are abnormalities in the anatomy. None too far in the past such unmodified terms as myocarditis, mitral stenosis, enlarged heart, and the like have constituted the only diagnosis made. These terms are no less important now than formerly, but they all require amplification by descriptive diagnostic statements concerning the etiology of the anatomical lesion and defining the disturbances of function present, to give them their proper value.

Disturbances of the normal function of the heart constitutes the third major component the physiological diagnosis. Here it is desired to classify disorders of mechanism, including abnormalities of rate and of rhythm, and functional disorders such as the "effort syndrome". Here, also when heart failure is present it may be indicated as being of the congestive or of the anginal type.

The importance of this part of the diagnosis is hard to overemphasize, for symptoms referable to abnormal function frequently dominate the clinical picture.

Not infrequently failure of the heart to perform its work in a normal physiological manner is present when no structural changes in the heart can be discovered. In such instances, to discover the nature of the disturbance in physiological function is essential in order to obtain a satisfactory conception of the patient's condition.

In the past too little attention has been given to this phase of heart disease, and it is to be deplored that even now patients are as frequently dismissed with the indefinite diagnosis of "irregular heart". Any arrhythmia, when persistently present, or recurrent, warrants a careful investigation. In many instances the nature of such can be determined without recourse to special methods of examination, but, if ordinary means fail, investigation with instruments of precision such as the polygraph or the electrocardiograph is indicated, since the information gained thereby may be a great aid towards rendering a prognosis and treating the condition.

Before any cardiac diagnosis may be considered complete the capacity of the heart for work should be thought of and a statement concerning this be added. This is of importance, since the immediate treatment of the patient, particularly the treatment other than by drugs, may largely depend upon this factor.

Many methods of exercise are in use, and many instruments have been devised and employed for the estimation of this capacity, and all give valuable information, though none are without fault, since they cannot take into consideration differences in habit and other differences in individual patients. One method that is quite simple and, perhaps, as satisfactory as any, in the majority of instances, is to ascertain by careful questioning to what extent the patient is forced to curtail his former usual activities in order to avoid discomfort.

Summary:

At the present time heart disease is one of the foremost problems of the public health, and the co-operative effort of physicians is needed for its solution.

In the past there has been little uniformity in the terminology or in the method of classification for cardiac diagnosis, so that the available statistics concerning heart disease are apparently of little value.

The American Heart Association has prepared a scheme for terminology and method of approach in cardiac diagnosis that is designed to encourage uniformity and completeness of diagnosis in heart disease, and therefore increase the value of future statistics and our knowledge of heart disease in its relation to the public health and to the individual patient.

The essential principles of this plan, which I have attempted to discuss briefly, are based on the fact that heart disease may result from many causes; that structural changes, if present, may be varied, and that functional disturbances of many kinds may complicate the condition. A complete diagnosis of any heart condition, therefore, requires investigation with these facts in mind. This does not necessitate a routine with irksome detail and unnecessary formality but requires only that when confronted with a problem in heart disease we think first of the cause; second of what anatomical changes our examination discloses; third, of the nature of any disturbance in physiological function detected, and finally of the ability of the heart to carry on its work.

There are many who, after continued use of such a method, are convinced that following it leads to more comprehensive diagnosis, and therefore is an aid to sound prognosis and to affective treatment. If this be true, it is reasonable to assume that increased efficiency should be ample reward for individual effort to follow such a routine.

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DISCUSSIONS

J. W. Scott, Lexington: Dr. Harvey's relation to me, which Dr. McCormack so tenderly referred to, prevents my saying very much in commendation of this paper. I will say, however, that I heard it with pride and satisfaction.

This paper really calls attention to the fact that the methods of diagnosis which are used in other conditions have, in the main, been discarded in the ordinary view of heart disease. Disease of the digestive tract, disease of the respiratory tract, disease of the nervous system, disease generally has always been studied with reference to these three components. No one has discussed disease of the digestive tract for instance without thinking first of the anatomical or structural changes involved, then of the etiology of these changes, and finally of the disturbances of function which has resulted.

Such has not been the case in the consideration of heart disease. Too many are satisfied with the mere statement that this patient has mitral insufficinency, that this other patient has irregular heart, or even if the irregularity is described it is not thought of in terms of strucural changes or of etiology.

One is apt to think of classification as a more or less technical setting apart of little practical value. Classification is much more far reaching than that. It addresses itself to the problem so completely that all the important objectives of treatment are really tied up in classification to a very great degree. So this classification which has been proposed by the American Heart Association is very useful and important, and is even more useful to those who are not specialists in diseases of the heart than it is to those who are.

Emmet F. Horine, Louisville: The paper as presented is a most important one in that it brings before us the modern idea of an etiologic heart diagnosis. It shows us the necessity for studying the patient very carefully in order to determine the etiology behind the heart condition. As the essayist has indicated, the former diagnosis that was prevalent years ago was a structural one. Practically all the physicians did in making a diagnosis was to use the stethoscope and if he heard a murmur the diagnosis was based upon that finding alone.

Such a diagnosis as mitral insufficiency, mitral stenosis, or aortic insufficiency, was all that was considered necessary. We now attempt to go much further than that, as the essayist has indicated. We not only desire to make a structural diagnosis, but we go back of that and attempt to determine the etiology which is the important thing. It brings to light the fact that the man doing heart work must be somewhat of a diagnostician along general lines in order to properly interpret the heart cases.

Just because a patient comes with heart signs and symptoms does not necessarily mean that the heart is diseased. I can best illustrate this by mentioning a case that came just a few days ago complaining of marked swelling of the lower limbs, of shortness of breath, and of a tachycardia, the rate being approximately 120. Examination revealed that the rapidity of the heart was a simple tachycardia, that the heart itself was not enlarged, that the muscle, though lacking tone, apparently was not definitely diseased and therefore we could not implicate the heart as being the cause for the symptoms.

Going still further, a basal metabolic determination was made and it was found that the basal metabolic rate was plus 40. If we had stopped there and said it was a hyperthyroid case we would have made a very grave error.

Our general physical examination, however, revealed an enlarged spleen. Coupled with this we found the white blood cells numbered 500,000, many myelocytes being present which permitted us to make a diagnosis of myelogenous leukemia.

A complete heart diagnosis is fourfold: etiology, structural changes, rhythm, whether normal or abnormal, and finally an estimation of the functional capacity of the heart that is its ability to do its work. With such a careful survey of all factors we shall be able to arrive at not only a full and complete diagnosis but a fairly accurate prognosis. (Applause).

V. E. Simpson, Louisville: I think there will be no disagreement in stating that from the standpoint of statistics our knowledge of the actual number of deaths due to heart disease is quite likely to be very erroneous. A good many of the causes of death are never determined. Lots of times patients die in the absence of a doctor. The description by the family of the nature of the going off is such that it is a convenient cover to crawl under and say that he died of heart disease. We have this condition confronting us frequently and the inability to check it with postmortem study makes it necessary for us to continue after this fashion for years yet to come. As a consequence our knowledge of heart disease may not be very materially modified by the statistical returns.

The classification as presented is an excellent one from the standpoint of statistics and is helpful to the man who is at the bedside. There is no need for the last classification, so far as statistics are concerned, namely with reference to the power of the heart to do a given amount of work.

It is implied when death occurs that the reserve is exhausted. Therefore, any other grades or degrees of reserve in the heart are improperly considered; but from the standpoint of the management of a case while yet alive the latter classification is of equal importance, in my judgment, with the cause, the anatomical or physiological classification.

Grouping under the head of rheumatic heart disease is subject to grave criticism. We have been grouping a long list of conditions, so far as cause is concerned, under the head of rheumatism as another blanket term. With our more intensive study of what we have come to denominate as focal infections we have separated out of this group a large percentage, so that there remains a relatively small percent of diseases involving a joint that secondarily damage structures such as the heart which is really rheumatic in origin. Even if we accept, what is probably a matter of revolutionary study, the work recently done in Philadelphia suggesting that a member of the streptococcic group is the cause of real rheumatism, this will comprise a relatively small percent of the total number of cases of joint lesions that fall under our observation.

Again, hypertensive heart disease, the so-called essential hypertension. is a condition which I have never been entirely satisfied with. I have never been able to persuade myself that in these cases we have as far as we might clinically eliminated the actual causes, kidneys and what not. To fall back on a diagnosis of essential hypertension is a confession of our inability to determine the nature of the trouble. In a study of postmortem cases in an institution in New York City for the care of the aged and infirm, the fact has been revealed that in the majority of these instances there is an arteriosclerosis, as called by those who made the study, involving the spleen, brain structures, and so forth. This study also showed surprising frequency that such organs outclassed and outdistanced renal involvement.

When I think and deal with what I am obliged sometimes in my ignorance to classify as hypertension, the late John B. Murphy comes to my mind who had a patient brought to his clinic in the hospital. He recognized the man and when he spoke to him the man said, "Yes, I was here three months ago." He found that the man had come in and that he and his associates had studied him, and had dismissed him under the classification of hospitalitis. Here he was back for study. Dr. Murphy then said: "Gentlemen, I am coming more and more to the conclusion when men and women come to my clinic saying they are sick and I fail to find out what is the trouble with them, I had better say to myself, 'Johnnie, you had better lick your calf over again.'"

W. F. Boggess, Louisville: I want to express my appreciation of the paper presented by Dr. Harvey, and also my enjoyment of the discussion.

It hasn't been a great many years ago, certainly within my memory, when the classification of heart disease was functional and organic, and in the organic we had just three or four disturbances of the valves. We only dealt with what we were able to elicit by our physical examination, whether it was aortic stenosis, mitral stenosis, aortic regurgitant, or an occasional pulmonary regurgitant-stenosis. Our classification of heart disease has been more nearly a correct determination than we hoped for many years ago. In those times we classified our heart diseases very much as most of us classify our skin diseases. It is either eczema or it isn't eczema and eczema covers 1000 different skin diseases about which we know very little.

The classification as outlined by Dr. Harvey as to etiology is a very important thing because a certain heart lesion from one etiological factor gives you a very different prognosis than another etiological factor. While the classification is not absolutely accurate it is along a modern working basis and is exceedingly helpful to us. While the heart muscle does not regenerate, or degenerate with the general musculature of the body it does to a degree and you have to take into consideration your patient's general musculature in evacuating your heart lesions.

With regard to what Dr. Simpson said about the essential hypertension, I agree with him. Essential hypertension is a wonderfully comforting thing to the doctor and wonderfully comforting to the patient. To say. "Now, as far as I can see, you have no high blood pressure," that means something. I believe in every case of hypertension there may not be a structural change, but there are certain causes and reasons that pertain to the heart because the very things that primarily raise the blood pressure are the things that eventually give you cardio-renal changes.

The Sanitary Construction and Arrangement of Milk Pasteurizing Plants—Health officers and others who have oversight of milk pasteurizing plants should read the article by C. E. Holmquist, Director of the Division of Sanitation in the November number of the American Journal of Public Health. The data on which this paper was written was obtained in the investigation of such plants by the Department during the last few years.

DIGITALIS THERAPHY*

By R. E. Smith, M. D., Henderson.

The most essential thing in the discussion of the theraphy of any drug is a thorough understanding of the properties and of the physiological action of the substance in question. In taking up the use of digitalis, it is obviously necessary that this drug be discussed technically and that its chemical properties and its physiological action be considered. The success or failure in the use of many of our diagnostic methods and therapeutic agents are due to the knowledge or lack of knowledge in the hands of the practitioner as to the "modus operandi" of the experiment or the drug.

Historical: Digitalis was listed in the pharmacopeia of Whiteringberg many years ago. We find it listed in 1721 only in that of London, but soon after this it dropped out of existence so far as accredited pharmacopeias were concerned, and it was not until 1785 that an English physician, William Whitering, wrote a paper on its "marvelous effects in cardiac dropsy", and today may be seen on his tomb in the old church yard where he is buried, a branch of fox-glove, beautifully carved in stone. It is a fitting tribute to his memory and to the service which he rendered to that part of humanity which has been afflicted with cardiac dropsy.

We find references to it and its efficiency in Bidault and Villiers which appeared in the year 1804. Digitalis was known long before this and had been used. The Arabian physician spoke highly of it and also mentioned its dangers but unfortunately we have little or nothing as to how it was prepared or used.

It was used during the "Plague of the Black Death," in the year 1300. We find it referred to also when the "Black Death" appeared in the year 1500. Of its value in these cases we have no record, nor in what type of the bubonic plague it was used. These brief historical facts are merely mentioned to remind us that many useful drugs have been discredited by the medical profession due to the lack of knowledge as regards the physiological action and often due to the improper use of valuable therapeutic agents which we have at our disposal.

In taking up the subject of digitalis theraphy, we will try to confine ourselves to its use in treating diseases of the cardio-vascular system, and in approaching the subject we will briefly review the physiological action of digitalis. As is well known, digitalis is officially defined as "dried leaves of the digitalis purpurea." There has been a marked discussion for several years as to the age of the plant before it can be used medicinally and also we are well acquainted with the instability of some of our preparations and with the inequality of their strength.

Within the last few years a great deal of work has been done in our pharmacological and chemical laboratories on this drug. These experiments have been approached by many investigators from different angles. We have few drugs in our pharmacopeia which have undergone more rigid testing, both experimentally and clinically, than digitalis and there is no drug today at the service of the medical profession, if properly used, that is of more service and gives better results in diseases of the circulatory system than digitalis.

Chemically the active principles of digitalis belong to the group of glucosides which are relatively unstable as a rule. The chief principles were isolated by Schmeidberg and Kiliana. These glucosides vary in their chemical comparison. Some are soluble in water, some in alcohol, some in chloroform and some in ether, and some are soluble in one or more of the solvents.

Digitalein was accepted by Kraft as a generic term for all active digitalis glucosides which are present in the leaves of digitalis and not in the seeds. This glucoside is soluble in alcohol but almost insoluble in water. Digitalin (digitalium verum) an amphorous glucoside is soluble in one thousands parts water. This dissolves readily in alcohol, in chloroform and in ether.

Digitoxin, a crystaline glucoside, is insoluble in water, very slightly soluble in ether, freely soluble in alcohol and in chloroform. This is the most powerful acting constituent of digitalis and is contained in it to the extent of 0.2 and 0.6 per cent. Other substances contained in digitalis are inert, crystalline bodies, others are physiologically active glucosides. We are all well acquainted with the recognized preparations of digitalis, leaves of digitalis, extractum digitalis, fluid extractum digitalis, infusium digitalis and tincturae digitalis.

Physiological Action of Digitalis.

Digitalis acts as an irritant when applied to the mucous membrane, sub-cutaneously it produces inflammation. These glucosides do not all act alike as irritants. Digitoxin being the most active, digitalin being but slightly so. These bodies do not all act alike when applied to the mucous membrane on different areas of the body. On one area we get a marked reaction and on another area of the same animal we get a very slight irritation. This leads us immediately to realize the fact that it will make considerable difference as to what preparation of digitalis we use by mouth or which we use intramuscularly.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

NERVOUS SYSTEM.

The general effects of digitalis are limited probably to its action on the medulla and its contained centers. Moderate doses seem to act only on the cardio-inhibitory and vasoconstrictor centers. Larger doses excite the vomiting and respiratory centers. Its action on the respiratory centers is very likely not wholly due to the direct effect of the drug on these centers, but rather due to a physiological compensation.

CIRCULATION.

According to Sajous, "Therapeutic doses act in the first place as a powerful stimulant on the myocardium itself. It increases the contractable power of the heart, the irritability and tonicity. The second fundamental effect of digitalis is that of stimulating the vagal cardio-inhibitory apparatus, both centrally (in the medulla) and peripherally (in the heart). The third circulatory action of the drug is that on the blood vessels with certain exceptions that cause them to contract both through stimulation of the vasoconstrictor centers and a direct stimulating action on the walls of the small vessels. The fundamental effects produced by digitalis are due to the simultaneous operation of the three factors just mentioned which tend respectively, first, to increase the force of the heart beat; second, to slow cardiac rate; third, to raise the blood pressure.

Small doses of digitalis tend to increase the force of the heart beat, the heart muscle being mildly stimulated but the rate not being modified (except in certain individuals). In larger doses the "therapeutic action" of digitalis appears. This is said to be a "product of combined muscular and vagal effects." In this condition the heart undergoes a greater degree of expansion during diastole, contracts more completely at each systole and shows a diminished rate. The pulse wave is consequently much larger. Notwithstanding the slowing due to the vagal factor, the amount of blood delivered from the heart into the aorta in a given period of time may be increased.

In abnormally dilated hearts which already contain an excess of blood, digitalis lessens the capacity of the heart owing to the great improvement in tone it produces, but this does not exclude an increase of the output for the process of evacuation during systole is far more perfect than before."

"In the greater circulation the peripheral stream is accelerated, while in the portal area there may be a similar effect if these vessels are not strongly contracted. If there is a very great contraction here, as shown by a marked rise of the blood pressure, the portal stream is probably retarded although a certain amount of resistance may be overcome by increased efficiency of the heart. The acceleration of the blood stream during the early stage of the action may explain some of the benefits that are derived. The fact that the blood is flowing rapidly through the tissues would indicate an improved blood supply, giving not only more nourishment but also providing far more complete removal of the waste products." Edmonds.

Experiments show conclusively that the stimulation of digitalis is exerted not only on the medulla but also on the heart itself. Hatcher and Weiss have done some very interesting research work on the mechanism of vomiting induced by digtalis bodies. Their experiments seem to bear out the fact "that the emetic action of digitalis is not exerted on the stomach and intestines. Second, that vomiting is not induced by any direct application of any digitalis body directly to the centers, although they have induced it in this way, with minute amounts of many drugs. Evidence that the heart is provided with the nervous mechanism for reflex vomiting is also afforded by the fact that nausea and vomiting (with belching), are common symptoms attending coronary occlusion and angina pectoris."

The evidence of some two hundred experiments of these investigators "points to the heart as the seat of action. This, together with the fact that evidence to the contrary has not been obtained, affords the strongest proof that digitalis bodies induced vomiting reflexly by their direct action of the heart."

Robert L. Levy and Thomas T. Mackie in a recent article have summarized the action of digitalis in a brief, concise and lucid manner and I take the liberty of quoting them.

Mode of action: "In therapeutic doses, digitalis causes an increase in the amplitude of ventricular contraction by direct action on the heart muscles. This has been demonstrated in animals and in man. In normal dogs it causes diminished cardiac output, but increases tonicity and diminishes dilitation; these effects have not yet been demonstrated in the diseased human heart. In the presence of regular rhythm, it does not slow ventricular rate except in persons with edema, in those with rapidly beating, hypodynamic hearts and occasionally in children. The vagus center is stimulated, often with resultant prolongation of auriculoventricular conduction. In auricular fibrillation, ventricular slowing from digitalis is due in part to vagus stimulation and in part to its direct depressant action on the conductivity of the auriculoventricular junctional tissues.

The blood pressure is inconstantly and variably affected. The diuretic effect is almost entirely due to improved renal circulation rather than to stimulation of the kidney epithelium. Nausea and vomiting resulting from digitalis intoxication are due to the direct action of the drug on the heart and not to an irritant effect on the gastric mucous membrane. The afferent impulses from the poisoned heart are conveyed to the vomiting centers in the medulla largely through the sympathetic nerves. In part perhaps, by way of the vagus.''

Let us take up the conditions in which digitalis is indicated. There is no drug at our disposal that is more valuable in conditions which we have classified as ''myocardial insufficiency.'' The symptoms of a failing heart are familiar to most of us, such as edema, most frequently appearing at first in the lower extremities; dyspnea, cyanosis, pulmonary congestion at the base of the lungs or liver congestion. The patient complains of pain in the heart area after exertion or nervous excitement. As the condition increases we find the patient complaining of orthopnea. As insufficiency increases we find hydrothorax manifesting itself. The cases that belong to the arteriosclerotic group responds more readily than that group of cases which have a rheuatic etiology.

Another interesting fact which was brought out a number of years ago and today we find it frequently in our literature is that the advanced cases of cardiac failure with a regular rhythm, reacts better to digitalis than those with an irregular rhythm. However, premature beats are frequently one of the earliest signs of heart failure. In these cases, digitalis frequently works promptly and efficiently, causing a return to normal rhythm and the disappearance of this irregularity in the heart action.

In partial heart block there is a decided danger of it producing a complete block. In complete auriculoventricular block which is not due to digitalis, the drug in some cases will cause an acceleration of the ventricular rate. Some authors state that where hypertention exists, digitalis should not be used. In many of these cases, gratifying results will ensue with the use of digitalis and we actually get a lowering of the blood pressure due to the fact that it has relieved the circulatory congestion. It is also of great service in auricular fibrillation to control the ventricular rate. The dosage in this case should be small and should be continued over long periods of time. In patients in whom the myocardium is badly damaged, its use is of great value in stimulating the action of the heart muscle.

''All observers and physiologists do not agree in the explanation of the complex pharmacodynamic effects of digitalis, the changes in the pathological rhythm of the heart, the production of the diuresis and the relief of edema.'' (Vaquer.)

Mackenzie prefers clinical observation and to study the action of digitalis on man rather than the experimental work on animals. Vaquer also accentuates the necessity of clinical observation for the better understanding of the physiological action of digitalis.

The scope of this paper will not permit us to go into the interesting discussions which have arisen from research work on man and animals in the hands of many investigators using the various preparations of digitalis.

ABSORPTION AND ELIMINATION.

We will briefly take up the absorption and elimination of digitalis. The preparation of digitalis when taken internally, requires some hours to show their maximum effect. Eggleston states that the maximum effect of the full doses on the heart are not obtained for forty-eight hours and in some cases requiring three days. Beneficial effects though, are obtained in forty-eight hours.

The effects of the gastric juice on digitalis that is administered by mouth, so W. Hale states, causes deterioration of the various individual glucosides as well as the tincture of digitalis amounting to about twenty-five to thirty-five per cent in three hours. These experiments were done in Vetrio. ''Believing that certain of the untoward effects seen in digitalis medication may be due to the decomposition products of glucosides and in view of the fact that deterioration were shown to be due chiefly to the hydrochloric acid in the gastric juice, he advises that an alkali be prescribed with digitalis.''

What happens to the digitalis substance in the system is still a matter of dispute, but it seems to be the consensus of opinion that part of it becomes firmly fixed in the tissues, especially in the heart muscles. It is a well recognized fact that digitalis disappears very slowly. This is doubtless due to the drug remaining in the body.

Robert L. Levy and Thomas T. Mackie state that ''digitalis disappears from the body at the rate of approximately .1 and.2 gm. in twenty-four hours, thus 0.15 gm. (1.5cc.) may be regarded as the average maintenance dose; i. e., the daily dose necessary to continue a digitalis effect at the desired level. Likewise if the drug has been properly given, the effective amount remaining in the body may be calculated by subtracting the total given, 0.15 gm. for each day lapsing since the beginning of the administration; thus if a total of 1.5 gm. be given in one day, it would take about ten days for the drug to be completely eliminated. Digitalis effects may on occasions persist for as long as three weeks after the administration has been discontinued.''

One thing that must be borne in mind in the use of digitalis is the idiosyncrasies that arise in individuals to this drug. The standardization of this drug has helped a great deal in overcoming this difficulty but it has not eliminated the danger entirely for doubtless we have all had enough experience with this drug, in its various forms and products, to make us feel uneasy after having given a moderate dose, and finding certain symptoms manifesting themselves which are closely allied to those which we consider as toxic effects of the drug.

According to Eggleston: ''From four to six days are required for digitalization with the small dose method. 1-8 to 1-4 grams of the powdered leaf or 1.25 to 2.5 cc. (M 20 to M 40) of the tincture of digitalis every four hours. The larger dose method requires from one to two days. The first twenty-four hours a dose of 0.4 grams (grains 6 to grains 7) of the powdered leaf, or 4.0 cc. (drachm 1.) of the tincture is to be given at six hour intervals for four doses. The second day the dose is reduced to about half and given at four hour intervals, four doses a day.''

METHODS OF ADMINISTERING DIGITALIS.

The most common and preferable method of administering digitalis is by mouth. By this method, if large enough doses are given, its effects may be manifest in from two to five hours and maximum effects from eight to twenty-four hours. If due to comatose condition of the patient or in cases where there is an irritable stomach with nausea and vomiting, digitalis may be given by rectum. The dosage and the effect are similar to those given by mouth. By rectum, it is preferable to use the tincture, well diluted. We have it in aqueous solution in ampules ready for administration by rectum.

It may be used intramuscularly. In this case, Ouabain is very likely one of the best preparations we have on the market. It may be used also intravenously. Here again Ouabain which may be had in tablet form or in ampules, is a preparation that gives us very good results, but intramuscularly or intravenous injections of digitalis are fraught with danger. The individual idiosyncrasies, the margin of safety of the therapeutic dose and the toxic dose is so small that it is doubtful if it should be used in this way except in cases of emergency where it cannot be used by mouth or by rectum or where an immediate effect is necessary.

The mistake is more commonly made on the part of the practitioner in giving too small a dose of digitalis than in giving large doses. Eggleston has accentuated this fact in an article published in 1915. To administer digitalis properly, the physician must have the ability to judge the degree of absorption on the part of the patient to the drug. It is necessary to prevent the over dosage because digitalis can cause serious poisoning and insufficient dosage will not produce the desired effect of relieving the symptoms and death may ensue.

What is known as ''digitalization'' is the administration of digitalis in cases which respond favorably to this drug to the point where we obtain ''clinical improvement.'' Our subjective symptoms according to Eggleston are as follows: ''Easier breathing, relief of cough, disappearance of palpitation, amelioration or disappearance of pain nor precordial distress, disappearance of nausea, and return of appetite. The objective symptoms, such as relief of dyspnea, orthopnea, cyanosis, and tenderness over the liver; increased urinary output, disappearance of edema, and rapid loss of weight; drop in heart rate, fall in pulse deficit, and the apparent decreased degree of irregularity in cases of auricular fibrillation.''

The degree of improvement depends on the existing condition of the heart and its capacity to respond to digitalis treatment. When we get uniform improvement it is usually an indication to discontinue digitalis theraphy, for in the majority of cases minor toxic action of digitals begins to manifest itself with the corresponding improvement.

We will conclude by enumerating the main symptoms of ''digitalis intoxication.'' According to Eggleston the first and most frequent sign is: ''nausea and vomiting; second, sinus arhythmia, especially when phasic in type or when independent of respiration; third, partial or complete heart block; fourth, premature contractions; fifth, the 'coupled rhythm' due to the regular appearance of premature contractions after each regular beat. This type is most characteristically seen in auricular fibrillation after marked ventricular slowing has been induced.''

There are other symptoms which may manifest themselves which have to do with complete heart block. These symptoms are infrequent. Any one or all of the above mentioned symptoms may manifest themselves and again we find cases in which one symptom may preponderate, and unless the physician is looking for the symptoms, it may pass unnoticed, then marked intoxication may follow.

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DISCUSSION.

S. J. Harris, Philpot: I heard a man say in this discussion this morning that digitalis was a depressant and I wanted to tell him then that he was mistaken. He said that digitalis was only a whip applied to the heart like he would apply to the horse to take him out of the mud, and I thought to myself, "Certainly you haven't used digitalis very much." I would have agreed with him if he had said strychnine was that, but not digitalis.

Digitalis is one of the best remedies I have ever used in the practice of medicine. I think I have done more real good with digitalis in many diseases than with any other one remedy, and the man who uses digitalis and studies the effects of it will find he can use digitalis in many diseases.

I recently used it in a case of lockjaw in a young girl fourteen years old, the first case I ever saw and I have practiced medicine for fifty-five years. Her father brought the girl to me on the nineteenth of May and on the fourth of June I dismissed that girl as cured. That was my birthday. I told my consultant, Dr. Tyler, that was a very important day with me. I said, "Tomorrow I shall dismiss this young lady as cured of this trouble." She was practically cured on the third of June, and I said, "So many years ago tomorrow I was in the battle of Fredricksburg, Virginia." That was an important day, and none of those days were more important than dismissing that girl as cured because we all expected her to die. She didn't do it; she got well. I pushed the serum to the full extent and got the result.

What I was going to say about digitalis was that in this case I found her heart was failing and I immediately put that girl on what I always give in pneumonia, and I want you to put that in your noddle and keep it there; I give digitalis in pneumonia, in every case of pneumonia whether adult, baby or anybody else. I use digitalis in every case of pneumonia and I give it with ergot, the fluid extract of ergot. I do that because the two combined act better on the blood vessels and we get better results. I put that child on my pneumonia remedy and the heart reacted in twenty-four hours and the child began to get well.

There is one thing I want to say about digitalis. Sometimes digitalis doesn't work without something to help it, and that something I have usually used is the tincture of strophanthus. I remember one case of fatty heart in a tubercular patient that his blood vessels and breathing were so obstructed, the man could hardly live. My consultant was old Dr. Tyler, a very splendid gentleman of his time. I had seen where Drasha of Paris had given tincture of strophanthus with good results in fatty heart and I said I wanted some tincture of strophanthus. I ordered the druggist to get an ounce at once and he sent it out by my consultant. I said, "What is this, doctor?" and he said, "I don't know. It is something John Head gave me for you."

I looked at it and said, "Dctor, our man is suffering more from his heart than from his tubercular trouble and I got this to give to him."

He said, "No sir, let's go on as we have done."

I said, "Doctor, we are not getting anywhere at all. We are giving the digitalis and we are giving salts and purging the man but he is going down all the time." At that time the man couldn't lie down in bed his breathing was so bad, he had to sit up in bed.

The old doctor left and I said, "This is my case and I am more responsible for it than he is. I am going to give strophanthus. I began on one drop to be sure of feeling my way and not do any harm. I gave him one drop three times a day. The old doctor came back in about five days and I was giving five drops with ten drops of digitalis every four hours. The result was that in five days our patient could lie down and rest. He died about eight months from that time but he lived comfortably up to the time he died, and I am sure digitalis and strophanthus were responsible for it; I am sure of it. When I hear people knocking on digitalis I say they don't know anything about it.

I am very glad to have heard this discussion. I came back this afternoon expressly to hear this. I wanted to hear it. It was a fine paper and I hope you gentlemen will take this home with you, what this old doctor says: I give digitalis in every case of pneumonia and I give it combined with ergot. I have no reason for it, except that digitalis and ergot combined act better on the blood vessels and will sustain your patient and help him to throw off the trouble.

R. E. Smith, Henderson, (in closing): I wish to thank the two gentlemen that took part in the discussion, and I am sorry that Dr. Simpson left before he had a fling at me.

There is one thing which I would like to bring out which I did not have an opportunity to bring out in my paper. These papers are time limited, and the ladies present would not allow me to say what Dr. Osler has been quoted as saying about a "time limited paper."

We frequently overlook one thing in the use of digitalis, and that is, we use it in cases which will not react to anything. This point has been brought out in the discussion. I think I said in my paper there were three types of cases which react digitalis. In that type of case which does not react to digitalis we invariably get conditions following the use of this drug which are toxic, manifesting themselves by marked change in the blood pressure or marked symptoms of toxicity.

In these cases we literally poison the patient just as we would with any other drug. We get identically the same symptoms from animals when they have been given an overdose of some of the proteins. We have seen animal after animal die from anaphylactic reaction with symptoms very similar to those of digitalis poisoning. There are some cases which will not react to digitalis. This is not due to the loss of potency of the drug but because the heart is so badly damaged we cannot expect the muscles to react to this drug. In these cases we should leave digitalis alone.

I have omitted in the discussion the use of strophanthus because I was asked to restrict my paper to the use of digitalis alone. Might we again accentuate the necessity of being very careful in the use of digitalis intra-muscularily and intravenously. We have a margin of safety that is so slight that when we have had the opportunity of seeing this drug used intra-muscularly or intravenously and see the disastrous results, it is very disconcerting and we hesitate to recommend its use intravenously or intramuscularly.

There is always that ever present question, the "personal equasion" of the patient. We had the opportunity during the war of seeing this drug used intravenously and intramuscularly, and it is not without a good deal of misgiving as we look back to those cases which succumbed instantly to the intravenous use and those which died within ten minutes after intramuscular injections and one case died fifteen minutes after intravenous injection.

In most cases we are playing safe in the use of digitalis if the patient is kept under close observation until we know how he reacts to the drug and what his tolerance is. We know that the toxic substances are excreted, and that they may be recovered in the blood and in the urine. This is common knowledge of the medical profession. With proper care and intelligent use of this drug the relief that can be given to the patient suffering from certain types of heart disease is one that cannot be measured or calculated in dollars and cents but only the gratitude of the patient who has had the symptoms which he so dreads relieved can begin to express the value of this drug to humanity.

THE MANAGEMENT OF THE DIABETIC IN THE HOME*

By Wm. A. Jehkins, M. D. Louisville.

Young individual emaciated to an extreme degree in a state of acidosis, with his or her metabolism all ''shot to pieces'' and desperately ill, is brought into a hospital on a cot, a case of advanced and desperate diabetes. This case is placed in the hands of a competent and experienced internist. At once the sympathy, assistance and co-operation of the entire hospital is centered on this case from the superintendent down to the dietician, with the internist occupying the center of the stage, directing and supervising the management of the case. As a result of this team work, (superintendent, internist, trained nurses, dietician and laboratory workers), in about three weeks what seems like a miracle has taken place in this case. The patient gains confidence, strength, weight and health, in fact, seems practically well. Indeed it is sometimes difficult to persuade those concerned that the patient is not well. The patient departs for his or her home in a splendid condition temporarily. You may have supplied the patient with written blanks and full directions of every kind. You may have tried as best you could to point out the absolute necessity for constant and detailed carrying out of the plan of management, including written instructions to the family doctor. What is the usual outcome in this type of young patient? It is this,—all seems to go well for awhile and then they begin to relax. The youngster is sent away somewhere to school and in about a year or eighteen months later you hear that the patient has suddenly died of diabetic coma. I have had this experience more than once and so has every other man engaged in this type of work. What is the trouble? There is too great a gap between the management of a case in a well-equipped hospital under a specialist and the management of that same case back at home by the family doctor and the family of the patient. Now diabetes is on the increase and we are diagnosing this disease earlier and more frequently. *Consequently if we expect to make any great strides in the proper management of this disease the problems must be simplified and brought to a stage, or basis, where the general practitioner and, through him, the family may gain the necessary insight and knowledge of this condition, and*

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

the more or less ironclad principles underlying its successful management. And how this to be accomplished, you say? My answer is by education. In any case the preliminary investigations may be made in a well-equipped hospital if the patient and the family doctor so desire. Here the primary blood sugar level and the patient's capacity or ability to metabolize carbohydrates may be definitely and accurately ascertained. Possible cases of so-called renal glycosuria may be differentiated, etc. However, this is not always possible, or even necessary, in every case. In this paper we are discussing the home management of an individual definitely known to be a diabetic. The family doctor must know the rough clinical methods of judging the severity of a given case of diabetes. He must know that a young individual, weak, emaciated and going down hill rapidly, with acidosis present, (as shown by tests), is a desperate case and must be placed in bed and handled with great care and knowledge, using both Insulin and carbohydrates in the proper ratio, at the same time using daily tests for urinary sugar and the presence of diacetic acid. On the other hand, a diabetic past middle age and over-weight, with a relatively high blood sugar, will in all probability prove to be a milder case. Such an individual may, and often does, go along for years, paying very little attention unfortunately to dietetic consideration. Cases of this latter type are often amenable to dietetic and hygienic management alone. Others may need some Insulin at intervals, but is should be used intelligently and guardedly.

The primary objects for the family doctor to strive for are: diacetic acid absent from the urine; urinary sugar decreasing and, if possible, absent; with a general improvement in the clinical symptoms of the case. With a good start along these lines your patient is removed at least temporarily from the danger zone, and the doctor has time, with the assistance of the standard texts, backed up by an intimate knowledge of the needs and peculiarties of his individual case to properly plan the next step in advance.

The first and most important step in your investigation of a given case is to determine the presence or absence of acidosis, (the presence of the acetone bodies in the urine). I do not know why, but text-books, teachers and doctors do not emphasize this point sufficiently. The tests for acetone bodies in the urine inform you of the gravity of your case and the approach of your patient to the danger zone far more accurately than does the simple estimation of the percentage of sugar at a given time. Diabetics usually die from an acidosis, coma. The test for diacetic acid is as important, and perhaps more important, than the test for sugar. When first taking hold of a case of diabetes this test is of major importance and should always be carefully carried out. Later on the test should be applied at appropriate intervals in all cases. (If acetone bodies are absent or are rapidly decreasing under treatment, the sugar is decreasing right along, and if the patient is gaining clinically it will obviously only be necessary to make the test at relatively wider intervals, etc.)

The test for diacetic acid is the only necessary test. The test is as follows: procure an ounce of Ferric Chloride (U. S. P.) 10% watery solution, (this substance does not deteriorate but will keep for a long time). Fill an ordinary test tube one-third full of urine, add drop by drop two to five drops of your Ferric Chloride solution. A crimson color denotes the presence of diacetic acid. The deeper the color the more acid present. A white or smoky cloud is a negative reaction. (It is well to remember that any individual under the therapeutic influence of aspirin will give a diacetic reaction.) It is necessary for the doctor to be acquainted with this test. He should likewise furnish the patient, or some member of his family, with this reagent and teach them to make the test.

The genesis of the acetome group of bodies in the human system is briefly speaking about as follows: A disturbance of the metabolic processes is present. Now this disturbance prevents the complete oxidation or burning of the fats. As a result of this incomplete combustion Beta-oxbutyric acid is formed. Later by process of oxidation diacetic acid is formed from the Beta-Oxybutyric acid and still later by process of decomposition acetone is formed from diacetic acid. These substances are in the circulating blood. Acetone is perhaps the first member of this group to show in the urine. But in diabetes diacetic acid occurs almost simultaneously with, or at least very shortly after, the acetone appears. Beta-Oxybutyric acid is the last member of this group to appear in the urine. Now in testing for the presence of the acetone group of bodies it is only necessary for the family doctor or the patient to make a very simple test for diacetic acid. The tests for acetone and Beta-Oxybutyric acid are complicated and hard to carry out. Diacetic acid is always present in diabetic acidosis and when it is detected we know that our patient is in the danger zone without going any further. The diacetic acid test alone is chiefly relied upon in determining the presence of diabetic acidosis by the majority of our advanced clinicians. The test is simple, reliable and easily performed. Full directions for the technic of this test will be found above.)

THE ESTIMATION OF THE URINARY SUGAR

Accurate and delicate percentage estimations of the urinary sugar cannot be carried out by the average patient or family, and they are not absolutely essential. The only reagent that is absolutely necessary is a bottle of Benedict's Qualitative Solution, (test for sugar), put up by any reliable drug house. The test is as follows: Fill a test tube one-third full with the Benedict's Solution, bring to the boiling point gently over a flame. (The family in lieu of a gas jet can place the test tube in hot water, or in a suitable vessel such as a tin cup filled with water, and allow the water to come to the boiling point.) Now add the suspected urine drop by drop until about eight drops have been added. If the urine contains no sugar your solution remains clear blue; if sugar is present a distinct color change takes place. If the fluid becomes green and turbid we have a trace of sugar only. If the solution becomes distinctly yellow and turbid, the amount of sugar present is moderate. If the solution becomes a brick red color and turbid, we have a high percentage or a large amount of sugar. The more sugar there is in the urine, the more quickly does the yellow color appear and the greater its quantity. In severe cases and in cases where the patient does not make any progress, and in all instances when Insulin is being used, the test for sugar should be made daily and preferably in the early morning before the first dose of Insulin is given, because if the sugar suddenly disappears it will be necessary to reduce, or even drop, the Insulin according to the needs of the case. Where the urine is sugar-free, or nearly so and no Insulin is being used, it suffices to examine the urine for sugar less frequently according to the doctor's instructions. The patient or any intelligent member of the family with a little application can be taught to carry out this easy and clinically efficient method of sugar testing.

In using Insulin the doctor or trained nurse always gives the doses at first, but sooner or later, if the insulin has to be used more or less constantly, it becomes necessary for the doctor to carefully and thoroughly instruct some member of the family or the patient as to the aseptic care and use of the hypodermic syringe, (and I might say in passing that it is surprising how quickly an intelligent lay individual can become proficient in this respect). Of course they must be taught the absolute necessity of making the usual sugar test each morning before the first dose of Insulin is given. They should always be cautioned to keep in mind the fact that the sugar may suddenly disappear and in that event the patient may show evidence of too much insulin, e. g., sudden weakness or fatigue, restlessness and nervousness, sweating,- pallor or flushing of the face, tremor or vertigo. This is an insulin reaction and the patient, or the family, are to understand that the patient should have some carbohydrate material at once, such as two sticks of candy, two teaspoonfuls of sugar in a glass of lemonade or an orange, then communicate with the family doctor. The family are to understand that when given insulin in severe cases a fairly safe rule to follow would be to allow one and one-half to two grams of carbohydrate for each unit of insulin used, unless otherwise ordered by the physician.

THE ESTIMATION OF BLOOD SUGAR.

Blood sugar estimations in the present state of our knowledge cannot be carried out by the family or even by the family physician. However, the physician can obtain a specimen of the blood and send it to the nearest reliable laboratory for the test, and this procedure can be repeated at the desired intervals. *The mere fact that he cannot obtain daily estimates on the blood sugar should not deter any physician from attempting the home management of diabetes*, for if the physician can get rid of acidosis, cause a rapid decrease or disappearance of sugar in the urine and produce a marked improvement in the clinical symptoms which his patient presents, he can fairly well disregard or do without blood sugar tests. As a rule diabetics under forty years of age who manifest prompt and encouraging improvement along the lines just mentioned practically always show a rather rapid return of the blood sugar to about the normal point, while on the other hand diabetics past middle age who are showing evidences of cardiovascular sclerosis or degeneration have as a rule a blood sugar rate well above the normal. It is probably a compensatory process and attempts at radical reduction of the blood sugar have proven unwise, disastrous and sometimes even causing death.

DIETETIC CONSIDERATIONS IN THE HOME MANAGEMENT OF THE DIABETIC.

Diet is undoubtedly the most important and the basic element in this entire subject. If the patient can be made to utilize, oxidize and assimilate nourishment in the proper manner, he improves and takes on weight and strength, and may possibly get well. On the other hand, if he cannot do this, then the reverse takes place. This article is written for the average doctor and through him for the average family. It is perfectly obvious, therefore, that it would be out of place for the essayist to illustrate this article with a series of intricate, algebraic formulae, or to enter into the details of the chemistry of the oxidation of the fat molecule by means of ketogenic and anti-ketogenic expressions or equivalents. However, the doctor must know food values and food classifications. He must know that he cannot safely reduce his carbohydrates too quickly and too radically for fear of acidosis. He must be able to calculate in calories his diets, proportioning his percentage of carbohydrates, proteids and fats according to the needs of his patient and the ability of his patient to metabolize carbohydrates either with or without insulin, as the case may be. Even this knowledge can be fairly accurately obtained from the Joslin card or the Lilly Diet Chart. This latter is most excellent. Any intelligent lay individual can soon be taught to properly utilize these sheets. Personally I always require the family to buy a scale graduated in grams to use in weighing the food, cost about ten dollars. The most of the above is explained elsewhere in this paper. The essentials of the home management of the diabetic patient are given above. However, by way of conclusion I shall outline a brief tentative plan by means of which I hope to illustrate and make a little clearer the everyday application of these principles.

Direct Treatment.

The presence of coma and even the presence of marked acidosis constitutes an emergency and will have to be met by prompt and energetic treatment. In the absence of the above, and with the average case, the best and most practical method would be about as follows: Place the patient in bed and adopt a modified starvation plan for about three or four days. That is, allow nothing but coffee, tea, clear broths and water at frequent intervals. If your patient does not become sugar free, he will in all probability need insulin, and he should at once be placed upon the ordinary basal or *rest diet*. He must remain in bed, or at least confined to his room, and Insulin U 20 1cc twice a day before his two principal meals by hypo. (The urine, of course, is examined for sugar daily). If he becomes sugar free, rapidly reduce or drop the insulin. Use one fast day a week. If he stays sugar free on this diet without insulin, you may begin to increase the diet by degrees, watching your effect. First increase the fats, then increase the carbohydrates slowly, say about five grams every third day. If sugar appears, fast one day and drop back temporarily to your basal or rest diet. Then advance as above, but still more slowly. By a continuation of this process we soon ascertain whether the given patient can be kept in nutritional balance without insulin or not.

Now, if we determine that insulin must be used to keep the patient in nutritional balance, use the smallest amount necessary to accomplish this result. However, after another long interval of insulin treatment, a guarded attempt should again be made to at least reduce and, if possible, discontinue the drug. In every case our ultimate hope is to finally build the patient up to the point where he can be kept in reasonable nutritional balance and at the same time feel well and be able to "carry on" and meet the requirements of a modified environment without inconvenience. If, after a prolonged, careful and scientifically applied trial, say one year or eighteen months, you find that your patient cannot be kept up without insulin, then the drug will have to be used constantly, but even in cases so severe that they require insulin all the time to keep them on a livable nutritional basis, it is desirable at intervals, say every two months, to cut back on the diet to a point where the insulin may be dropped temporarily, even if you have to go entirely back to the starvation plan for a short period of say two or three days. An occasional short rest at least from the insulin is desirable. It breaks the monotony and improves the morale of the patient. The above plan should be followed out in every case of dieabetes, if at all possible.

The Diet.

The diet must be computed from the standpoint of total calories or energy-producing units made up of carbohydrates, proteids and fats. The card system is very good for this purpose. The Joslin card is an example. Most of the firms manufacturing insulin get out diet systems along this line. They are useful, easily applied and fairly accurate. Any intelligent patient can be taught by means of anyone of these systems to compute his own diet, increasing or decreasing same according to the needs of the case. The physician should supervise this work in every case, even making out one or two standard diets for the use of his patients.

Our patient must learn that

1 gm. Carbohydrate = 4 Calories
1 gm. Protein = 4 Calories
1 gm. Fat = 9 Calories

also that a fair average basal or rest diet for a diabetic weighing from 100 to 120 pounds should contain about 1200 to 1500 calories a day (roughly speaking) divided about as follows:

Carbohydrates	44 gms.
Proteids	50 gms.
Fats	125 gms.

Now with this basic knowledge in hand it is not a difficult matter, by consulting the diet card, to select three suitable meals. Find the amount of carbohydrate, proteid and fat in each article in terms of gms. Then it is very easy to compute the daily total calories. The articles in the diet list can be changed to prevent monotony. Personally I usually make out one or two simple diet lists suitable to the needs of the particular case. Appended are sample instructions sheets, also sample diet sheets, in which I have selected, grouped and computed food stuffs from the standpoint of palatability, availability and nutritional value.

Perhaps I should not close this paper without saying a word about diabetic emergencies. For example (1) coma; (2) marked acidosis, or threatened coma; and (3) diabetic gangrene. Let us take them up briefly in inverse order. First, diabetic gangrene. Early diagnosis and modern scientific management, including insulin, proper diet, etc., enable us to avoid this stage in the majority of our patients. In cases where this emergency does arise, insulin and carbohydrate, with the other necessary diet elements properly combined. enable us to build our patient up to a point where surgery may be employed with a markedly decreased risk.

Second, marked acidosis, (the pre-coma stage). Here also we must combine the use of insulin with proper carbohydrate feeding. The results are usually prompt and satisfactory.

Third, diabetic coma. This is always a grave and serious condition, many times even fatal. Prompt and energetic treatment is necessary. The following, or some modifications of same, is a good general plan:

Give insulin, 20 units, at once, and 20 units every hour thereafter. Empty bladder, fix a catheter in the bladder. Test the urine for sugar each hour just before giving the hourly dose of insulin. As the sugar decreases in the urine, decrease the size of the dose of insulin and widen the interval of administration.

In treating diabetic coma with large doses of insulin there is some danger of producing hypoglycemia, with a continuation of the coma and death of your patient. Therefore carbohydrates should be used in conjunction with your insulin. When your sugar begins to decrease, as noted above or in any instance after 50 units of insulin have been given, one gram of carbohydrate material, 10 cc. of orange juice or one gram of glucose, sugar or dextrose must be gotten into the system for each unit of insulin injected.

Usually the coma case needs fluids. Give normal saline 500 cc. sub-pectorally in the first hour or so. Later normal saline re-inforced with glucose 5% per rectum, using the Murphy drip method. The patient's body should be kept warm. If the patient regains consciousness and becomes able to cooperate, use hot coffee, hot broths, orange juice and milk, keeping up the insulin according to indications.

DIAGRAM NO. 1

Low calorie diet, useful in severe cases while you are determining the severity of your case.

Article	Gms. or Amt.	Gms. C.	Gms. P.	Gms. F.	Calories
Breakfast:					
Cup of coffee or tea	0	0	0	0	0
1 soft egg	50	6	6	6	78
Bacon, four strips	30	6	5	15	155
Butter, two portions	30	0	0	25	225
Bread, one slice	30	18	3	0	84
Total					542
DINNNER:					
1 cup coffee or tea or 1 bowl clear soup	0	0	0	0	0
Bread, one slice	30	18	3	0	84
Lettuce salad, ½ head of lettuce or ten leaves	0	1	.5	0	6
Spinach, two stablespoonfuls	30	1	.5	0	6
Boiled cabbage, 2 tablespoonfuls	30	1	.5	0	6
Total					102
SUPPER:					
Clear broth, 1 bowl					
Tea					
Slice of toast	30	18	3	0	84
1 soft egg	50	0	6	6	78
Total for the day		**57**	**27.5**	**52**	**806**

A Suitable Rest Diet When Your Patient Begins To Make Some Progress.

Article	Gms. or Amt.	Gms, C.	Gms. P.	Gms. F.	Calories
BREAKFAST:					
1 soft egg	30	0	6	6	78
Bacon, four strips	30	0	5	15	155
Butter, 2 portions	30	0	0	25	255
Bread, 1 slice	30	18	3	0	84
Milk, 8 oz.		12	8	8	152
Total					694
DINNER:					
Tea, coffee or clear soup					
Bread, one slice	30	18	3	0	84
Lettuce salad, one-half head, or 10 leaves		**1**	.5	0	6
Choice of any one of the following vegetables, 2 tablespoonfuls:					
Spinach, asparagus, string beans, cabbage, cauliflower, sauer kraut, tomatoes.		1	.5	0	6
1 glass of milk		12	8	8	152
Total					248
SUPPER:					
Tea					
Slice of toast	30	18	3	0	84
1 soft egg	30	0	6	6	78
1 glass of milk		12	8	8	152
Total					314
Approximate total daily calories					1,256

DIAGRAM NO. 3.

Basal or Rest Diet Chart. This Chart also Contains Lists of Food Values From Which May be Computed Any Type of Diet.

1 Gm. of Carbohydrate == 4 Calories
1 Gm. of Protein == 4 Calories
1 Gm. of Fats == 9 Calories

A Basal or Rest Diet for a diabetic individual weighing about 100 pounds should contain about 1500 calories divided as follows: Carbohydrate 44 gms., Protein 50 gms., Fats 125 gms.

For the average individual in perfect health (weight and other things considered), 3000 calories is a good average daily requirement, divided about as follows: Carbohydrates 500 gms., Proteid 125 gma., Fats 50 gma.

CAUTION! While using *Insulin*, if your patient should suddenly show pronounced hunger, weakness or fatigue, a peculiar restlessness, pallor or flushing, dilated pupils, increased pulse, sweating, tremor or vertigo,—it means too much insulin. Stop insulin and give sugar, candy or syrup at once.

Article	Gms. or Amt.	Gms, C.	Gms. P.	Gms. F.	Calories
Bread, one small slice	30	18	3	0	84
Butter, 2 portions	30	0	0	25	225
Whole milk, 1 oz.	30	1.5	1	1	19
Cheese, 1 small slice	30	0	8	11	131
Bacon, 4 small slices	30	0	5	15	155
Egg, one soft	50	0	6	6	78
Potato, 1 med. size	30	24	4	0	112
Chicken	30	0	8	3	59
Ham or lean beef	30	0	8	5	77
Oat meal, small saucer	(dry) 30	20	5	2	118
Lettuce, one-half head or 8 or 10 leaves	30	1	.5	0	6
Cucumber, one-half	30	1	.5	0	6
Spinach, 2 tablsp.	30	1	.5	0	6
Asparagus, 6 to 8 tips	30	1	.5	0	6
Rhubarb, 2 tblsp.	30	1	.5	0	6
Sauer Kraut, 2 tblsp.	30	1	.5	0	6
Beet Greens, 2 tblsp.	30	1	.5	0	6
Tomatoes, 1 med. size	30	1	.5	0	6
Okra, 2 tblsp.	30	1	.5	0	6
Cauliflower, 2 tblsp.	30	1	.5	0	6
Egg Plant, 3 slices	30	1	.5	0	6
Cabbage, 2 tbsp.	30	1	.5	0	6
String Beans, 2 tbsp.	30	2	.5	0	10
Pumpkin, 2 tbsp.	30	2	.5	0	10
Turnip, 2 tbsp.	30	2	.5	0	10
Squash, 2 tbsp.	30	2	.5	0	10
Beets, 2 tbsp.	30	2	.5	0	10
Carrots, 2 tbsp.	30	2	.5	0	10
Onions, 2 tbsp.	30	2	.5	0	10
Canned Peas, 2 tbsp.	30	2	.5	0	10
Stewed Prune (10)	30	124	3.6	0	525
Baked Apple, 1 medium	30	120	.61	.58	128
Blackberries, 3 tbsp.	30	10.9	1.3	1	59
Cantaloupe, one-half	30	21.3	1.4	0	93
Pineapple	30	9.7	.4	.3	?

DISCUSSIONS

J. W. Scott, Lexington: The problem of the treatment of the diabetic in his home is one that arises in every case. As Dr. Jenkins has said, the diabetic eventuallly has to carry on. If he survives the first stay in the hospital he has to be gotten out and back onto a regular regimen of care.

When we first began the use of insulin and the more modern treatment of diabetes it was our idea that every diabetic should be put into the hospital for at least a couple of weeks. We are getting away from that, and the milder diabetics we find we can handle perfectly well by having the patient come to the office daily, learning during this time the necessary technic of examination of the urine for sugar. Usually the patients from out of town go to the hospital and these I think go home with a distinct handicap if, as Dr. Jenkins has indicated, they are not out of the hospital for some days before they return home. Under conditions which obtain with most of us proper instruction of the patient particularly as to preparation of food and examination of the urine for sugar is difficult and the patient who leaves us without our guiding him for at least a few days under home conditions is at a distinct disadvantage.

As to the measure of diet, I think it is very useful to have patients equip themselves with scales, although I think the chief use of that is psychological. While it is important to know food values accurately, they are quite variable. No two samples of the same vegetable for instance will have exactly the same C. H. content therefore a little variability of measurement is not important if the patient is accurate in the use of domestic measures and I believe that the household measures generally available are sufficient for the diabetic if he is reasonably conscientious and intelligent. The use of the scale, however, has a great moral effect on the patient. He thinks it is accurate, and that he must be accurate also.

Usually the diabetic who comes under our care is taught within the first three or four days to test his own urine and we impress upon him that the urine must be treated daily; a specimen being saved from the urine voided at bedtime and tested with the morning urine in the morning.

I believe Dr. Jenkins is exactly right when he says that the average diabetic can be taken care of perfectly satisfactorily by the general practitioner without unusual laboratory facilities if he will simply acquaint himself with food values. To my mind, that is the crux of the whole thing, an accurate working knowledge of food values. Any man can do it who will. There isn't one man out of twenty undertaking to treat lidbetes who knows, or will take the trouble to learn, food values. It is impossible to treat diabetes intelligently without this knowledge.

The patient that is being treated without blood sugar determinations from time to time will sometimes fail to do well even though his urine is sugar free. In such a case there may be a high threshold for sugar in the urine. The patient may have a blood sugar of 200 mgm per 100 cc. something like twice the normal, and yet not be spilling sugar into the urine. The hyperglycaemia is unrelieved though the urine is sugar free.

As to sending blood to the laboratory from a distance: blood sugar fades very rapidly, and the blood that has been drawn ten or twelve hours is quite useless for the determination of sugar in our experience. For that reason we always have patients who are out of town come in for these determinations. The patient at a distance must bring his blood in his veins and not have it sent as an oxalated specimen.

As to the blood sugar in youth, I may have misunderstood Dr. Jenkins but I got the impression that he thought the youthful diabetic, or rather the one under forty, could be more easily controlled than the one over forty. I am rather surprised at this because I have been under the impression that the older the diabetic the milder the disease, and in our experience at least the blood sugar level can be more easily lowered and kept lowered in the elderly diabetic than in the diabetic under forty. Of course, it is a notorious fact that we have all recognized and has been recognized for generations, that diabetes carries a graver prognosis in childhood and youth than in the adult or in old age. (Applause).

V. E. Simpson, Louisville: There is no other disease that lends itself as nearly to mathematical accuracy in management as does diabetes today. Neither does any other disease require greater attention to detail on the part of both the physician and the patient. Nor is there any other disease in which the patient, by training, can be of greater service to himself as he fights his way back to adequacy of function, no, not even excepting tuberculosis.

These axiomatic statements make it imperative that every physician who essays the professional care of the diabetic equip himself with a knowledge of the fundamentals which intensive study of the disease have made strikingly clear. The proper study and care of the diabetic implies no undue deprivation nor impose any impossible financial burden. As no patient with appendicitis today need die for lack of surgery, so no diabetic need remain without the pale of scientific care. Necessary demands can always be met; decent burial is never denied even the pauper, transportation, hospital or home care and professional services can always be had for the appendicitic; by the same measure of justice the poor diabetic, as well as the more fortunately circumstanced one, can always command the opportunity to possess the utilization of the fundamentals necessary for intelligent care. What are these desiderata? First, a study of the case to discover whether he has diabetes, then to learn the degree of its severity if it exists, to know his requirements for food, to determine his sugar tolerance, to gage his renal threshold which implies a knowledge of his blood sugar, the accomplishment of all of this making the decision possible as to whether insulin is necessary and if so, how much. Second, the training of the patient thereby enabling him to carry on the daily details without dependence upon the doctor or nurse. This means teaching him to figure his diets, weigh his food, examine his urine qualitatively for sugar, properly interpret the major manifestations of his disease or the effects of treatment. The diabetic is entitled to live as nearly normally as his disease will permit; to be independent of daily visitations of his professional attendant; and, finally, to have the benefit of the knowledge, adapted to his uses, which will secure for him the greatest possible expectancy and economic independence.

Is the presence or absence of urine sugar a reasonably reliable criterion of either the degree of severity of diabetes or a gage of satisfactory treatment? I answer emphatically no, unless the renal threshold is known. As every normal person has his individual threshold, so has every diabetic a blood sugar level above which urine sugar appears. I have seen thresholds as high as 270 mgms. or blood sugar per 100 cc of Blood. Unless the doctor knows this, how can he intelligently care for that patient? I go further and ask how he can even make a diagnosis of diabetes until the blood sugar passes the renal threshold and enlightens him with a belated copper reaction?

One wonders at the inconsistency some clinicians exhibit toward laboratory study and the blood sugar and urinary sugar values in diabetics serve as an excellent example. In one breath urinalysis is set up as a guide to diabetic management and in the next blood chemistry study is labelled ultra scientific and by some, even unnecessary. Yet both are a matter of laboratory techinque; is it because they can and do the one one and cannot and do not do the other? Urinalysis may be a serviceable yardstick, but twenty-four hour specimens must be studied; single specimen study is merely another slump in the direction of inadequate information. To merely keep a patient's urine sugar free even if happens to have a normal threshold is not adequate. Normal blood sugar levels are found between the extremes of 80 and 120 mgms. per 100 cc of Blood. Body cells function best when bathed in blood stream containing normal concentration of chemical constituents. Why, then, should the diabetic be permitted to have a fasting blood sugar of 170 to 180 month in and month out? He won't when the doctor declines to be satisfied with a superficial plan of management.

Now, some comment on the training of the patient. I send the diabetic to a hospital only when in need of surgery or when coma exists. If a resident of Louisville he is treated in his home; if he comes from out of the State he is put in an apartment furnished for light housekeeping. When the case is a male adult some female member of his household comes also so she may prepare the food and be taught how to figure diets, weigh food etc. The basic idea is an endeavor to have the patient live under as near the same conditions while being studied and trained as he will live under when the training period is over. My nurse visits them daily and teaches what they should know about food values. balancing diets, etc. Any one able to read and write can be taught in one week to translate into terms of bread, meat, fruit and vegetables the figures given them as a diet allowance. I have taught children of eight to ten years of age to do this and it is stimulating to watch their interest grow. The diabetic comes to have an increasing appreciation of what can be done for him and becomes intelligently cooperative. I have scores of them in this and adjoining States carrying on with a confidence and appreciation that is a satisfying contrast to the uncertainty and ignorance of such as struggle with indefinite instructions. Nothing short of accuracy will answer and until we get down under the skin of the thing, rejecting superficiality, we shall continue to see mild cases gravitate into severe ones.

The general practitioner must be the counsellor of the diabetic.But he must have the knowledge necessary to make his counsel not only safe but helpful. That is what I am trying to do for him. To encourage the idea that the diabetci can and should be managed by approximations and speculations is merely making a gesture for approbation and belongs in the catagory of "fence corner surgery" platitudes of a decade ago.

John Harvey, Lexington: After such a complete discussion I hate to arise, but there is just one thing I want to mention, and that is the insulin reaction. I have had an unusual thing happen with two patients who have had to have two doses of insulin daily to keep the blood sugar at the proper level. Both of these patients went into insulin shock at night while asleep, so since then I have been very careful in giving insulin where two daily doses are required. I give a smaller dose before the evening meal than in the morning.

W. A. Jenkins, (in closing): When Dr. McCormack asked me to read a paper before this Society on "The Management of the Diabetic in the Home", I was a bit reluctant about accepting the invitation, because I knew that if I stuck to my subject and really and truly described how it would be possible to manage a diabetic at home, my article would be likely to seem perhaps plain and commonplace to some of you. Certainly there would be no chance with this title of making a reputation for scientific profundity or as an orator. Yet I accepted and at the risk of losing the allurements mentioned above I have given you a simple and effective method of home management of Diabetes.

Dr. Simpson tells us with a grave look and a shake of the head that he feels that in order to manage a case of Diabetes scientifically it would be necessary to have frequent checkings on the blood sugar curve. Now, that is just what I was expecting somebody to say and, if that statement is absolutely correct, then my article is useless and I might just as well have stayed at home so far as any be benefit to you practical doctors are concerned. The inference for you country doctors is that you cannot manage them at home, you send them to me or to some other man who is paying particular attention to internal medicine. I make the point and I am sure that I am correct, that it is not absolutely necessary to keep a constant tab on the blood sugar curves in diabetes. This work cannot be done by the country doctor in his office; the patient or any of his family can never be taught to do this work. I do not do this work myself, neither does Dr. Simpson. Special technical training is necessary to the carrying out of blood sugar estimates. As I said to you in the paper, if you get rid of the acetone bodies, sugar in the urine is absent or is decreasing, the patient is feeling well and is gaining in weight and strength, there is no necessity to worry about frequent blood sugar estimations. All of the above measures can be watched, tested for and estimated, not only by the doctor but even by the family or by the patient. Now you can always, as I said in the paper, get a specimen of blood and send it to a competent laboratory for estimation at occasional intervals. If blood sugar estimations are absolutely necessary as a routine in the management of diabetic cases, then we can never have an effective home management—but this is not a necessity. They can be obtained at certain irregular intervals, as I mentioned above. Now we may be sure that a patient who is not in acidosis and whose sugar is decreasing or absent and who is gaining in weight cannot be in any danger of dying in the next day or two, so the family can be taught to make and understand these simple tests and estimates, and the doctor if he so desires can check up on the blood sugar, as mentioned above.

Dr. Joslin and all other authorities are now recommending the home treatment for diabetics, and their numbers are such that if we ever expect to get anywhere with the problem as a whole some type of home management will have to be worked out. I have attempted to give you practical doctors such a plan.

As to the use of scales for the purpose of weighing foods, I should say that they are not by any means a plaything, but are very useful in measuring and estimating foodstuffs in severe diabetic cases. We know that from our tables a certain number of grams represents a definite amount of sugar and proteids and if the article of diet holds these constituents in a concentrated form, it is best to weigh the given article in order to be on the safe side in our computations.

Somebody asked about prognosis. The prognosis depends upon the type and the age. A child of ten of thereabouts is a much more severe problem than is the heavyset man past middle age. I have seen a number of individuals past middle age, rather heavy-set, who ran along for twelve or fifteen years without paying any particular attention to dietetic or other considerations. They do not always do this, but my point is that diabetes is much harder to manage in youth.

Now a word regarding the question of the high blood sugar curve. We do have it, of course, but in the great majority of our cases, if we can clear up the acidosis, get rid of the sugar and improve the wellbeing of the patient, the blood sugar curve will in partically all instances gradually go down to the normal. Now, as to the high blood sugar curve in the individual past middle age, the story is slightly different. If improvements are being obtained along other lines in such a case and your patient is getting better, it is not desirable to rush in with heavy doses of Insulin in an attempt to force the blood sugar curve down. I do not know whether you gentlemen pay very much attention to the literature or not, but certain physicians in Europe are writing quite a bit about this phase of the subject at the present time and in the last issue of the "Journal of the American College of Physicians" Dr. Joslin cites a case and states that in his eagerness to produce results in a given individual patient past middle age, showing a high blood sugar curve, he pitched in with too much Insulin, a cardiac attack came on and his patient died. In his opinion in such cases as the above, it would be more desirable to proceed a bit slow and attempt to bring about improvement in the other symptoms of the disorder without going after the blood sugar curve so strong. In my experience this is the best thing to do. In the degenerative period of life perhaps the blood sugar levels needs to be higher than normal. It is perhaps a compensatory process, just as certain degrees of high blood pressure are compensatory in certain individuals.

I believe if the average country doctor will study and carry out the plan which I present, including the education of the family, he will be able to manage a case of diabetes just as well as the author of the article or any other man could be expected to do.

FEEDING THE SICK INFANT*

By J. W. BRUCE, M. D. Louisville.

The sick infant is always a feeding case no matter what else may be the matter with it. Disease anywhere in the body will affect the gastro intestinal tract; chiefly by diminishing the efficiency of its enzynes. Unless this fact is borne in mind serious indigestion may occur from over-feeding or giving improper food and a comparatively mild illness may be converted into a severe one.

Acute gastro intestinal indigestion in infancy and childhood is generally secondary to some cause outside the gastro intestinal tract. The commonest causes of indigestion might be placed in the following order:

1. Infection such as tonsillitis, pyelitis, otitis media
2. Fatigue.
3. Hot weather.
4. Unwholesome food.

The first three of these causes i. e. infection, fatigue and hot weather, have no direct connection with the intestinal tract. They act by diminishing digestive capacity, so that food which ordinarily is perfectly digested, now is only partly digested and so falls easy prey to the bacteria which normally inhabit the intestinal tract. These bacteria, of which the colon bacillus is probably the most active, ferment and putrefy the intestional contents and form various toxins and irritating substances which produce the symptoms of indigestion that we are familiar with.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

It is important therefore in feeding the sick infant or child to bear in mind that its digestive capacity is reduced and give it food in small amounts, properly prepared and easily digested.

How can we care for our little patients that are sick with acute fevers such as influenza, measles, tonsillitis, etc., in such a way as to prevent indigestion?

It is important at the beginning of any acute illness especially if the onset is sudden and fever is high to give the bowels a brisk cleaning out. However, after this initial catharsis, provided the diet and fluid intake are properly looked after, it is rarely necessary to give more than a gentle laxative. Repeated or continued purging of the little patient is a debilitating procedure that rarely does good and often much harm. One or two or at the most three movements in 24 hours are sufficient elimination in nearly all cases. It is well to remember that calomel and castor oil are powerful cathartics. The harm done by too vigorous catharsis is twofold. The mucous membranes of the gut is irritated by the chemical action of the drug and what is more important large amounts of water are unnecessarily lost. One of the hardest things to accomplish in the care of a sick child is to make it take enough fluid and we must be very cautious about stimulating its elimination.

The administration of fluid is probably the most important point in the therapy of infancy and childhood and one that is often sadly neglected. The body cells of the infant lose water much more easily than those of the adult, so that in the presence of fever or diarrhoea, dehydration constantly threatens unless vigorous efforts are made to keep up the fluid intake. Dehydration slows up in the excretion of urine which results in failure of elimination of normal and abnormal metabolic products of the sick child. It is far more important to urge fluid intake to stimulate the output of urine than to give cathartics. The best way to make children take fluids is to make them taste good and to change from one to another. Fruit juices take the first rank: orange, lemon, grape, pineapple. There is no danger in giving fruit acids with calomel. Weak tea is readily taken. It is most important to give the mother a simple and accurate method of measuring fluid intake for if the doctor says "Madam, have this child drink a great deal of water", it is remarkable how some women will interpret this order. The amount of fluid the child is to consume should be specified and a good method for measuring this is as follows: Suppose the child is to take two quarts of fluid in 24 hours. Put two mason jars or milk bottles beside the child's bed. Every time fluid of any kind is taken, pour an equal quantity of water into jar i. e. if four ounces of orangeade are taken, pour four ounces of water into the jar; if five ounces of weak tea are taken, pour five ounces of water into the jar. At the end of 24 hours, the jars should be full. If the child is old enough to cooperate it will take keen interest in filling the jars. Unless some such plan is followed, the mother will not take seriously the doctor's order to have the child drink water. Free administration of fruit juices usually makes cathartics unnecessary after the first day.

The most easily digested food is well cooked starch of some kind; particularly toasted bread, cream of wheat, macaroni or rice. Cream of wheat or macaroni should be cooked two hours in a double boiler, rice four hours. Oatmeal and potatoes are more likely to disagree than others and should be omitted. Carbohydrate food is particularly valuable in fevers because it combats the tendency to acidosis which hangs like an ominous cloud over the head of every feverish child. The most valuable carbohydrate is pure dextrose (U. S. P.) or glucose because it requires no digestion at all and is absorbed unchanged. In a little more purified form (Chemically Pure Anhydrous Dextrose) it is widely used intravenously. Dextrose has a pleasant sweet taste and can be given in fruit drinks or weak tea in the proportion of one or two level tablespoons to eight ounces of liquid. It can be given freely to infants and children of all ages. It does not produce nearly as much gas and is not as laxative as the more commonly used sugars e. g., cane sugar, lactose or Karo Corn Syrup. Fats must be given cautiously in fevers because of the tendency to produce vomiting and acidosis. A certain amount of protein food is necessary in long continued fevers i. e. those that run over a week, but in short fevers protein can be given very sparingly. The most digestible protein is that in boiled milk.

Milk is generally vomited if given in the first twenty-four hours of a fever. During that twenty-four hours it is better not to order milk, but to give clear broths, thickened with rice, macaroni, or toasted bread, and fruit drinks with dextrose. After the first twenty-four hours, boiled milk is generally well tolerated and is a valuable food.

As fever comes down, cream may be given gradually until whole milk is used. Protein foods in the form of soft boiled eggs or chopped rare beef are next and finally several days or week after defervescence well mashed green vegetables. In long continued fevers such as typhoid, protein foods and some mashed vegetables are given throughout. In such cases the digestion seems to become adjusted to the fever and tolerates food which it would not tolerate in the first few days. Strained meat and vegetable broths are always digestible and supply valuable minerals and salts. During convalescence it is advisable to order a generous diet laying special emphasis on eggs and meats and green vegetables.

Suppose our little patient is suffering with acute gastro intestinal indigestion when we see it. Our treatment will vary according to the symptoms presented. Two things that must always be given in large quantities are sugar and water.

Suppose the child is seen early in the attack and is vomiting and has fever but the bowels are not well opened. First give a cleaning enema and a cathartic. Calomel has the best chance of staying down, but some men prefer to give milk of magnesia in teaspoonful doses repeated every hour until effective with the idea that a little magnesia will stay down with each dose and finally produce results. Give teaspoonful sips of ice cold weak tea or orangeade with dextrose or ginger ale every five or ten minutes. If these are vomited or refused, give retention enemas of 5% glucose every two hours, the amount varying with the age of the child. Retention enemas are not usually successful in children less than 3 or 4 years old. I have never had success with the rectal drip in young children. If vomiting persists after several hours, wash out the stomach with 1% soda bicarb nate, rest two hours and try the sips mentioned above. If vomiting persists twenty-four hours or if symptoms of intoxication appear before that time, it is usually best to give glucose intravenously or subcutaneously. Persistant vomiting especially if accompanied by fever may lead to serious or fatal acidosis in a short time. Never give a vomiting child milk unless it is fat free and well diluted. Do not give it at all if any other food can be used. The first food to give after vomiting has stopped is clear broth thickened with rice or toast. I have never seen any drugs that relieved vomiting and I believe that all medication by mouth should be stopped while vomiting is present. Vomiting usually ceases spontaneously after twenty-four hours in acute gastro-enteritis.

Suppose the child has diarrhoea. Cathartics are unnecessary after the bowels are running freely and only add insult to injury as the bowel is already doing its best to cleanse itself out. If the diarrhoea is due to indigestion there is a marked intolerance for food and the quantity of food must be reduced to a minimum and be made as digestible as possible. It is doubtful if one food element is more apt to cause diarrhoea than another. It has been maintained that sugars are laxative and protein is constipating and that in diarrhoea we should give more protein and cut down sugar. However, the opinion most commonly held at present is that in acute intestinal indigestion of infancy, no particular food element is involved but rather the food mass as a whole including fat, protein, and carbohydrate. If this is true we must consider what food elements are most necessary to the half starved child, and what foods experience has taught us are most easily digested.

Undoubtedly the most important food elements to the half starved child are carbohydrate and water. The most readily available carbohydrate is pure dextrose because this requires no digestion at all and is absorbed from the stomach and bowel unchanged. Sugar is valuable both as a food and as a guard against acidosis. Experience has shown that the most digestible food is boiled skim milk and well cooked starch. Milk is more digestible the longer it is cooked up to several hours. Starch should be cooked long enough to be partly dexterinized and this takes several hours. My own preference is to use only the boiled skim milk and dextrose for the first few days. The following formula may be written for a six months baby:

Skim milk 10 oz.
Dextrose U. S. P. 2 level tablespoons.
Water 30 oz.

Cook one hour in a double boiler; 6 oz. and 6 feedings. Dextrose 3% in water or weak tea can be given freely between feedings. (Dextrose U. S. P. 1 level tablespoon—water or tea 8 ounces.).

As the tolerance for food increases and stools become less frequent and more digested the formula can be strengthened, finally adding cream gradually and changing to some other form of sugar. I have had better success in checking diarrhoea with the above fomula than with any form of protein milk. The above formula can be used as lactic acid milk. Prepare as described or boil only five minutes over the fire, cool, and add U. S. P. Lactic Acid three minims to each ounce of milk used. I have seen very few cases where lactic acid milk was effective where well cooked milk has failed.

As the stools improve well cooked starches are gradually added leaving potatoes and oatmeal off until digestion seems normal. Egg and chopped meat can next be given if the age permits. Green vegetables and fruits should be withheld for a week or two and during hot weather until the weather turns cooler.

If blood and pus appear in the stools the case is one of dysentery or colitis and not intestinal indigestion. This disease runs a self limited course like typhoid and it is not necessary to cut down the food to the extent described above.

Intestinal intoxication may appear at the beginning of intestinal indigestion or after several days. It is characterized by fever and stupor, delirium or convulsions. It is important not to feed a child with intoxication anything at all as it has no power of digestion and food will make the intoxication worse. The treatment is to give Ringer's Solution or Saline and dextrose in every way possible, by mouth, nasal drip, intravenously, intraperitoneally and subcutaneously. Ringer's Solution or Saline are used in preference to water as otherwise the mineral deposits of the body will be washed out. Transfusion of blood should always be given and repeated in two or three days unless marked improvement has taken place. Food can be given as soon as the toxic symptoms abate and then the above mentioned formula of skim milk and dextrose is good.

DISCUSSIONS

P. F. Barbour, Louisville: Dr. Bruce has covered the subject so thoroughly and so absolutely that there is very little to be added to what he has said. I don't know that I can criticize any one statement that he made.

I am glad he emphasized the importance of giving sufficient water. It is a very difficult matter to get enough water into a child. If you had an infant of your own, and I hope you all have, you will have that little kiddy wake up and want a drink of water. The child will take at least one teaspoonful of water and put the glass down, and just as soon as you get carefully back into the bed that little child will say, "Daddy, I want a drink of water."

A teaspoonful of water in every fifteen minutes is only a tablespoon in an hour. I am glad he emphasized the point that you must measure the quantity of fluid the child should take and see that the child gets it. That means when the child drinks water the mother should urge it to drink more.

There are one or two things that have helped me in the vomiting of children. As Dr. Bruce has said, there are very few medicines that give very much relief for vomiting. The child takes its dose and in the course of a few hours the child has vomited and the mother is in despair.

One of the helpful things is the administration of a teaspoon of barley water and five drops of a predigested food. Give that every 10 minutes. I have found that would stay down when other types of food would not stay down. The cereal is soothing to the wall of the stomach. While the child may vomit after the first two or three doses, you will find it stays down after that. It also furnishes a certain amount of nutrition the child needs.

Another agent that I found to be of great help is the administration of orange juice. One of my friends in Florida tells me that when you give orange juice to relieve nausea in a child be sure not to give an orange that is over ripe. If the end of the orange opposite where it is attached is soft at all or turned a different color from the rest of the orange, it should be thrown away. It is over ripe and the acids are irritating to the mucosa of the stomach. If you pick a good orange you have less trouble.

The doctor mentioned the use of milk of magnesia for the relief of vomiting. I think there is hardly any one drug that is quite as helpful as the milk of magnesia in these cases. Give it to the child until you get the result of neutralizing the acid of the stomach and relief from the bowel of undigested material.

He emphasized another point, that the child must not be purged too much. Still you must get offending stuff of any type out of the child's bowels before you get relief from the vomiting. As long as there is any undigested material or any stuff putrefying in the bowel that is the thing that is causing the vomiting, and sometimes it is very difficult to remove it all from the bowels. It is sometimes a question of a dozen or more stools before you get the thing out of the child that has made it sick.

I am glad Dr. Bruce emphasized the matter of the carbohydrates. If you can get enough sugar and water into a child you can keep it alive an almost indefinite length of time, but they do need water and they do need carbohydrates. (Applause.)

James H. Pritchett, Louisville: I am very glad, indeed, to have heard Dr. Bruce's paper. It is an intensely interesting and practical paper.

In Uncle Tom's Cabin the character of Topsy was asked on one occasion by whom she was raised, and she replied, "Lawsey, Ah wasn't raised; Ah just growed."

This is true of some children. They can do most anything and get by with it. It is entirely a different matter with the sick infant. They must be fed properly if they are to make a speedy recovery, and of course every word Dr. Bruce has said is true.

There are several features of importance. I am sure if they are followed very closely, will aid surgeons and general practitioners as well, the point in regard to the intake of water is a most important one. As emphasized by Dr.

Barbour, it is remarkable how long they can do on water alone. I have tried the various ways he outlined, and I want to say they have worked out wonderfully well. The question of feeding is the most important one.

Concerning the sick infant there is another phase which I had occasion to use only last week and which I spoke to Dr. Bruce about. I had a sick child about eight months of age, doing badly. The child was removed from its mother's care to the Children's Hospital under a most competent nurse, and the child immediately began to take food and water, and recovered completely.

To my mind, in this particular case, the mother annoyed the child so much it would not take food, and immediately after entering the hospital the child took the required amount of water in twenty-four hours, milk was taken and the child made an uneventful recovery.

Another point which he well brought out was that in each case of a sick infant the doctor himself must oversee the case entirely. It is not sufficient to leave this to a nurse, or to the mother. She must have definite instructions, a certain amount of water, a certain food prepared in such and such a manner. This way, I am sure, gives the sick infant a much better chance for recovery.

I am certainly very glad, indeed, to have heard this wonderful paper.

James W. Bruce, Louisville: (in closing): I want to thank the gentlemen for the discussion.

In getting fluid into a child in the home, particularly in cases of pyelitis, we want to give several quarts of fluid a day, and we will find it impossible to get that much fluid into a child by ordinary oral administration, the nasal drip has a wonderful field of usefulness.

In this case you take a number ten soft rubber catheter and thread it down through the nares into the stomach, or just short of the stomach. This is less apt to produce gastiric irritation. Then rig up the ordinary Murphy drip and the fluid can be administreed much more rapidly than by a rectal drip and it stays down. Using that method we can get as many as 40 or 50 and even 60, minims per minute administration of fluid. The child can be fed that wal as well as getting in fluids, and it is a very helpful method of administering fluid in cases where you need to administer a great deal, and its great value is that it can be done at home. Hypodermoclysis or intraperitoneal or intravenous injections are difficult to do at home, and we usually advise parents to take the children to the hospital to have that done.

Dr. Pritchett spoke of the refusal of some children to take food, and I think his method of having a competent, trained nurse take care of the baby in place of the mother is one method we have frequently resorted to in bad cases.

One of the doctors asked about the amount of fluid to be given in twenty-four hours. I thinks that is entirely dependent on the case. Some children require more than others because some lose the fluids from the body cells more easily than others. It depends entirely on the individual case. I think it would be impossible to say how much, but for a twelve months' old child, I should like to get in a quart and a half, or possibly two quarts, of fluid in twenty-four hours.

SYPHILIS OF THE HEART*

By J. Rowan Morrison, Clyde McNeill, H. V. Noland, Louisville.

We appreciate the invitation of the Program Committe to read a paper on this subject. When Dr. McCormack asked me to write this paper, I asked that I might associate with me, Dr. Clyde McNeill and Dr. H. V. Noland, in order that I might have experience in observing a number of this character of cases.

In making our "hop off" we realize that we are to encounter "cloudy weather," as a considerable number of good observers at the present time almost deny that there is any such thing as syphilis of the myocardium, whereas many other experienced observers have led one to believe that we have to deal with a great deal of syphilis of the heart muscle. On the other hand it has been the observation of many that syphilis of the cardiovascular system principally affects the aortic valves and the root of the aorta. One has only to read the history of syphilis of the heart in any good work on cardiology to see how undecided the opinions of writers on this subject have continued for a long time. For instance, Vaquez in his book on "Disease of the Heart" takes up this subject in a very interesting manner. We only hope to present our observations of cases and some of the literature.

From our observations we must admit that there are cases of syphilis involving the myocardium and the coronary vessels. For instance, those cases of bradycardia associated with Stokes-Adams syndrome where the autopsy shows the presence of syphilitic degeneration affecting the ariculo-ventricular bundle and showing a distinct gumma there. In our opinion it represents syphilitic myocardial degeneration. Also there are a considerathle number of cases of involvement of the coronary arteries that would certainly seem to be of syphilitic origin. However, in our observations we are of the opinion that in the great majority of syphilitic heart involvement we have to do with syphilitic aortitis showing up at the root of the aorta causing such changes in the aortic cusps that they become inadequate as a valve by curling on themselves to such a degree that they produce a very inadequate closure of the aortic opening, thereby producing such a change in the circulation that we have the typical involvement found in aortic insufficiency. One might argue that this is not syphilis of the heart, but syphilitic aortitis, however, we are confronted by the fact that at least it is where the "brook and river meet," and as the principal damage is done to the heart itself, we desire to consider this type of case as syphilis of the heart, or at least cardio aortic syphilis. The reader does not remember of seeing more than five cases of syphilitic heart block in his experience and it seems to be the opinion of many other observers that whereas these cases do exist, they are not frequent.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

It is of extreme importance to determine the etiological cause of heart disease. In fact, this is one of the important things to consider in the advancement of the study of heart disease taken in conjunction with a careful, pains-taking history. It is especially advantageous when we find an etiological factor that can be remedied.

The reader remembers of having seen in 1913 a demonstration of spirochaetes in the heart muscle by Doctor Warthin. Since the development of the Wassermann reaction and the demonstration of spirochaetes in the heart muscle, many observers have been inclined to believe that there was very much more syphilitic involvement of the heart muscle than they had been inclined to believe before and that many cases of rapidity and irregularities of the heart were due to this involvement. However, Vaquez says, "Cardiac syphilis of the adult would be very common if one ascribed to it all the lesions found at autopsies in subjects infected with syphilis, but it does not follow necessarily that these lesions are syphilitic. Other proofs are requisite, drawn from the presence of the pathgenic organisms or from structure of the lesion. Usually these proofs are wanting." The same thing would apply if the infection was determined by a positive Wassermann reaction.

We have been led to believe that the diagnosis of syphilitic aortitis could be made rather early if we made careful enough observations, and this is undoubtedly true if the cases present themselves early enough or if we had symptoms enough to make a positive diagnosis by very careful examinations. The symptoms are supposed to be substernal pain, breathlessness and weakness. However, from the observations of White, Sprague and Jones, reported in Nelson's Loose Leaf Medicine, 1927, in checking up the autopsy findings with the diagnosis clinically, in 297 cases it was found that a diagnosis of syphilitic aortitis before signs of the aortic regurgitation were present was made as infrequently as was adhesive pericarditis, in fact it was rarely ever made.

In Vaquez's description of aortic insufficiency he speaks of that type of aortic insufficiency due to an endocardial origin, and the type due to arterial origin. Under the types of endocardial origin we have to do with infectious disease, principally rheumatism, less frequently pneumonia, scarlet fever, typhoid fever and other infectious diseases. In these cases we have the aortic valve involved, as in other infectious diseases, and if the patient lives through the acute attack, there usually is quite a lot of recovery of the damage done to the valves and these patients may live for a considerable length of time with a competent heart. In fact the prognosis is far better than when the aortic insufficiency is due to arterial origin. This type of aortic insufficiency is much more common than that due to endocardial involvement. When we consider the insufficiency due to arterial origin, the usual cause in patients between thirty and fifty years is syphilis.

A most excellent paper read before the American College of Physicians in 1927 on "Latent Syphilis as a Cause of Heart Disease", by R. W. Scott, of Cleveland, O. He presents his finding on 75 cases of syphilis of the aortic valves, which have been well studied in the Cleveland City Hospitals. He considers that one of the earliest pathological findings in a widening of the commissure between the aortic valves. He says "The earliest lesion of syphilis is found in the aortic adventitia and affects primarily the vasa vasorum—obliterative endarteritis with perivascular infiltration. This same process appears at the commissures where it involves the small vessels extending from the aorta and supplying the lateral margins of the aortic leaflets. As a result of the vessel disease, degenerative and later chronic inflammatory changes appears, which ultimately lead to a fusion of the lateral margins of the leaflets with the adjacent aortic intima, giving the gross appearance of a widening of the commisure. The distorted valves ultimately become insufficient; in other words, the anatomical defect at the aortic orifice now becomes a functional handicap to the heart. In the same paper R. W. Scott says: "So far as we have observed in this study, the ultimate failure of the heart can not be ascribed to syphilitic changes in the myocardium. The microscopic appearance of the myocardium observed in our cases was not charateristic and differed in no way from that seen in hypertrophied hearts from other causes, i. e., hypertension.''

In Vaquez's ''Disease of the eHart,'' he also notes the following: ''According to Tripier, syphilitic aortitis is characterized by fibroid patches limited to the region just above the aortic valve and by invasion of the coronary arteries; moreover, the insufficiency has a characteristic appearance consisting in a separation measuring one or more centimeters of the free borders of the thickened and unequally retracted cusps.

The material that we have had at hand for study has not been worked up sufficiently to give any accurate pathological findings, although grossly most of it has shown very much what we have described before in the preceeding quotations.

The hearts are not always greatly enlarged with syphilitic aortitis, unless the lesions be situated near, or extends to, the root of the aorta. It is a well known fact that with syphilitic aneurisms of considerable size where the root of the aorta is not involved, that the heart is frequently not enlarged.

From quite a number of cases of cardio-syphilis observed by McNeill and by Noland. The particular symptoms are only observed in the number of cases noted:

	McNeill	Noland
Average age	48 years	46 years
Color	74 negro 73.3% 27 white 26.7%	33 negro 76.7% 10 white 23.2%
Sex	91 male 90% 10 female 10%	33 male 76.2% 10 female 23.2%
Wassermann, when done	75% plus	70% plus
Average length of time from primary lesion until aortic insufficiency	18 years	21 years
Pain	Substernal 29 present 35.8% Abdominal 16 present 20% in 81 cases	Substernal 16 present 39 % Abnominal 6 present in 41 cases 14.6%
Palpitation	21 present 65½% 32 cases	26 present 63.5% 41 cases
Dyspnoea	81 present 92% 88 cases	39 present 90.6% 43 cases
Onset of Symptoms	Sudden (in few days) 13 Gradual (in few weeks) 69 in 82 cases	Sudden 9 20.9% Gradual 31 77.7% in 40 cases
Size of heart	11 no enlargement 14 plus 41 2 plus 87½% 24 3 plus In 90 cases	1 no nlargement 11 plus 19 2 plus 98% 12 3 plus In 43 cases
Dilated aorta	Clincal 53 in 86 cases 61.6% X-ray 27 in 57 cases 47.3%	Clinical 21 cases 48.8% Checked by X-ray 18 cases 41.8%
Heart failure On admission	17 negative 81½% 11 first degree 10 second degree	6 negative 85½% 11 first degree 16 second degree

	53 third degree In 91 cases	9 third degree In 42 cases
Arrythmias	Extra systole 18 19.3% Auricular fibrillation 2 .2%	Extra systole 6 10.4% Auricular fibrillation 1 .4%
Syphilitic aortitis	7 cases 1 showed substernal pain	8 cases 2 showed substernal pain

We have so far considered the type of cases seen in public hospitals. In private practice the conditions are probably more favorable for an early diagnosis. For here we have the advantage of having our patients under closer observations and frequently at a period when with a history of syphilis or its determination by a positive Wassermann. A physical examination with proper x-ray examination of the aorta would lead us to make an early diagnosis. This point should be stressed in practice so that definite diagnosis of syphilitic aortitis be more frequently made.

The treatment of syphilis of the heart has so far not been particiularly satisfactory. We must realize that with the knowledge of a history of syphilis and with the elimination of infectious diseases or other causes of heart involvement that one must consider the potentialities of syphilis playing a part in cardiac lesions.

According to the plan of the older observers lesions of the heart otherwise unaccounted for, may be relieved by the methods of treatment in vogue for syphilis for many years. For instance, the older physicians considered that mercury and iodides had a specific healing effect on chronic syphilis wherever it might show itself, therefore a careful syphilitic treatment gave results in many cases where there was involvement of the heart, even when the location of the disease was not really definitely known, as in certain irregularities, tachycardia, bradycardia, etc.

In the treatment of angina pectoris, due to coronary involvement with syphilis these observers have reported good results from syphilitic treatment and in this syphilitic type of case, more was accomplished than in any other type. Although recent observers do not consider syphilis as a large factor in angina pectoris. Also with bradycardias associated with the Stokes-Adams syndrome.

We have found in the treatment of cases such as we have described that the proper use of mercury, either by inunction or injection and accompanied with iodides, gives the best relief. As to whether or not the arsenicals are indicated in these cases is still a mooted question.

Erhlic stated that salvarsan should be used most cautiously in cardio-vascular cases and since that time observers have led us to believe that it is of at least only limited service. It should, if used at all, be used only in small doses. The reader and Doctor Noland have seen instances where they feel distinct harm had been done in these cases by the arsenical even in small doses. On the other hand, Doctor McNeill feels that it has never been of any particular service. Some observers state that it is not harmful when used in suggestive small doses for a time and the reader and Doctor Noland have seen a few cases where it has seemed to be of at least temporary benefit for the relief of pain. However, in cardio aortic cases we do not see any reason for trying to produce negative Wassermann by intensive use of arsenicals, as we believe the damage has already been done to the aortic valves and even if a negative Wassermann were maintained, the heart structure is so invovled that the condition would progress on account of the physical deformity.

In discussing heart disease and public health, Cohn in American Heart Journal, April, 1927, finds that syphilis is a frequent etiological factor of heart disease, but in his conclusions he states "Theoretically the situation is more fortunate in syphilis (than in rheumatic fever) practically the methods of prevention and treatment offer enormous difficulty."

The best prophylactic treatment of syphilis of the heart would be the proper and continued treatment of syphilis in beginning and followed through its various stages, such as is applied in the modern clinics as conducted by Keidel and others.

After once syphilis is established and becomes latent it is liable to involve the cardiovascular system or many of the other important organs of the body. It has been shown in these clinics that the thoroughness with which a treatment is followed from incipiency decreases immensely the after results of syphilis.

The observation of some physicians that syphilis treated in the old way is as efficacious or more efficacious than the modern methods is not substantiated by our findings.

The reader has seen two cases of cardio-aortic syphilis develop in individuals in private practice whom he has every reason to believe had taken most thorough and careful treatment as prescribed by the older methods and to have followed this out to the utmost extent of their instructions. So far we have not seen any case of cardio aortic syphilis developing in any one who has taken the modern careful advised early treatment with arsenicals, mercury and iodides, although this has not been applied frequently enough and over a period long enough for us to find whether these cases will develop later, say from fifteen to twenty years from the beginning of their treatment.

We believe that syphilis should be treated in the beginning as a disease, as tuberculosis, and not alone as a social evil. It will be most difficult to get all cases thoroughly treated, but until we get to do this and advise our patients to have it done whether in private practice or in well organized free clinics we have not really begun to treat the source of this disease.

DISCUSSIONS

W. F. Boggess, Louisville: I should just like to emphasize one or two of the points that Dr. Morrison made.

I think syphilitic heart disease is more common than we think. I think it is more common than we diagnose, and I don't know that it is any less now under modern treatment because modern treatment has not gone far enough.

All of the cases of syphilitic aortitis and cardio vascular disturbances are of long standing, many of them fifteen or tweny years. Most of the cases we see are cases that have not had any treatment or have had insufficient treatment lasting only a few months in the initial stages.

Another type that I think we get syphilitic heart disease in is the congenital syphilis that runs along until they are twenty, twenty-five or thirty years old and possibly never suspect they were syphilitics at all and come to us with a heart condition that is suspicious of a syphilitic heart. We have a Wassermann made and find them positively syphilitic.

Many of the cases of syphilitic heart disease that I have found have been through the Wassermann test and by diagnosis. Of course your x-ray is always indicated in a suspicious case.

There is one other thing. I don't know, but I think Dr. Morrison will bear me out in this: I know almost instinctively when there is a syphilitic heart, but I can't tell you why I know it. I couldn't explain my findings to you, but those are things that come to us as we get older in experience; certain signs and symptoms, certain peculiarities, certain little shades and shadows of differentiation tell you that you have a thing, and I think Dr. Morrison will bear me out that this happens in syphilitic hearts. You know from the aortitis whether the Wassermann is positive or not, and you feel justified in saying that it is a syphilitic heart.

As to treatment, I think you shouldn't say that the arsenicals do harm in these cases, arsenicals should not be used, because in most of the old neglected cases and untreated cases it is not alone the syphilis of the heart but a general syphilitic toxemia, and they need your arsenicals. I think the iodides and mercury—and the old saying I first heard Dr. Loomis say possibly forty-two of forty-three years ago when he didn't know what else to do for the heart, was to give iodide of potash, and the iodide of potash and small doses of mercury were the best remedies at our command for old chronic cardio vascular cases. I think they should still be given in these cases, but I don't think we can say that the arsenicals will do no good. The arsenicals will do good as a whole and possibly make many more comfortable while you are looking after the cardio vascular condition.

W. A. Jenkins, Louisville: For twelve years I have conducted a clinico-pathological conference at the Louisville City Hospital. I have made some practical observations concerning syphilis of the cardio vascular mechanism. The first of these is the statistics.

Dr. Morrison has well said that a great many men say it is uncommon and others say it is exceedingly common. The man who graduates and goes to a clean neighborhood in a little town and practices medicine there all his life has relatively few cases consult him on syphilis. Those few cases that do come to him take the treatment he prescribes as long as they think they ought to. Those cases are usually not advanced syphilis cases and do not attack the cardio vascular system.

In an eleemosynary institution where the riffraff and the negroes and ignorant congregate you would be inclined to say that syphilis of the cardio vascular system was one of the most common forms.

Another point that has impressed me is regarding the treatment of these cases. Some of these gentlemen have said that you shouldn't use the arsenicals and some say that the treatment isn't much good, and others say they are. Why is it? Here is the whole thing in a nut shell. You can't replace degenerative, connective tissue, and if you wait until your structure is burned out and it has been replaced by connective tissue, no kind of treatment is going to replace that structure. If you get hold of syphilis of the heart, or syphilis of anything, when it is in the acute, exudative, congestive stage you can work a miracle. If you get hold of it after the tissue is destroyed nothing you can use will do any good.

Regarding the cumulative effect of digitalis, I don't believe half of the men in Kentucky have the correct idea on that. A given dose of digitalis doesn't accumulate any extra activity by means of its residence in a body in a few hours. If you give five doses of digitalis you get an over effect. The same thing will occur with opium. You must know digitalis. You must know how long it takes digitalis to oxidize. You must know it doesn't begin to take a physiological effect for a considerable period of time. If you bear those principles in mind you won't get mixed on the cumulative effect of digitalis.

I was a bit entertained all around this morning on the summary. Many things were brought out. One of the specialists even tells us that on the first time a cardiac case was sent to him it looked like a heart case, and a little investigation convinced him it wasn't a heart case. A metabolic rate made it look like a possible thyroid condition, and yet if some diploma specialist, who had never had any general practice, got hold of it what would happen to the case?

I presume you gentlemen would draw the conclusion that I drew years ago, that it is not absolutely essential that a patient with cardiac symptoms should seek the services of a specialist in heart disease, but it is absolutely essential that he should seek the services of a first-class doctor.

Albany School Children Write Their Parent About T-A—An effective way of stimulating parental consent for toxin-antitoxin protection of preschool children has just been used on a large scale in the parochial schools of Albany, New York. After Miss Duffy, a health bureau nurse, had spoken to the children of all of the eighth grades on the need for diphtheria prevention each child was instructed to write an original letter to his parents suggesting the advisability of immunizing younger brothers and sisters. The following is a letter selected at random:

Dear Mother:

The school nurse was in our room today. She gave us a very interesting and serious talk on toxin-antitoxin, which will prevent diphtheria. The nurse said that the death rate of children who contract diphtheria between the ages of six months and five years is fifty-two out of every hundred. So mother, don't you think it would be wise thing to do in having brother inoculated? It is harmless and painless, besides you need never worry that brother should be ill with diphteria.

Your loving daughter,
Florence.

AN UNUSUAL CARDIAC DEATH.*

By Morris Flexner, M. D., Louisville.

The case to be recorded is an ordinary one of cardio-renal disease with hypertension, which would not have been reported had it not been for the unusual way in which the patient died.

A male, white, aged 51, had been under observation since April, 1927. At that time he said that he had known he had high blood pressure and shortness of breath on exertion for five years. His blood pressure was 195-118, pulse 72.

The positive findings on physical examinations were: His face seemed somewhat flushed, there was prominence of the vessels over the cheek bones and particularly about the nose, a little puffness under both eyes. His heart was definitely enlarged,the point of maximum impulse being one inch outside the nipple line in the fifth intercostal space. Under fluoroscopic examination the shadows of the vessels were also wider than normal; no aneurism. The heart sounds were of good quality; no murmurs present. There was a marked accentuation of the aortic sound.

At that time a specimen of his urine showed a heavy trace of albumin, a few hyaline casts were present, but the specific gravity was 1020. The Wassermann reaction was negative, and the blood urea nitrogen was 15.6 mg. per 100 cc. Blood count normal.

The patient was placed on the usual regime,—diet, rest and simple medication,—and was seen at intervals of from one to two months (he lived out of the city) during which time he did fairly well. On one occasion (in June, 1927) his blood pressure was 158-108 and he said he was "feeling fine." However, his business responsibilities became arduous, he was unable to secure the rest and relaxation which he demanded, and on September 24th he returned with a blood pressure of 208-130, pulse 80, heart sounds not quite so good, and with some dyspnea.

He was again cautioned about his regime, given a course of digitalis, and not heard from until October 24th, at which time he was brought to the city in very bad condition. He had been ill with a respiratory infection for a week, the dyspnea had become progressively worse until he was practically orthopneic. His pulse rate at the time varied from 120 to 140, moisture at both bases of his chest, his liver was three inches below the costal margin, and there was edema of both legs for the first time. His urine at this time showed a heavy trace of albumin, specific gravity 1020, with casts and a few pus cells.

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*Read before the Louisville Medico-Chirurgical Society, He was rapidly digitalized and did very well. His liver returned to normal, and the edema disappeared from his legs. He was extremely restless, however, not sleeping well and there was great difficulty in keeping him comfortable. The restlessness gradually became more and more pronounced. After digitalization was complete his pulse receded to between 80 and 90. He was placed on theobromine (diuretin). Because of his extreme restlessness, another blood urea nitrogen test was made on November 2nd, which showed 21.4 mg. per 100 cc. He became irrational and slightly dyspneic again. Alkalies, which he had received throughout the course of his treatment, had no effect.

I was called suddenly the morning of November 3rd, ten days after having first seen him following the date he was brought to Louisville, and was told by the nurse that he had "had a peculiar spell in which his pulse stopped, that he had become unconscious and had almost died." I saw him shortly afterward and found him in good spirits with a pulse of 84 and good color. His blood pressure was 175-110. While I was feeling his pulse it suddenly stopped, the patient's face assumed a terrified expression and he became very restless, slightly cyanotic, his lid slits widened, and he looked as if he was going to die. Smelling salts were held under his nose and he was given aromatic spirits of ammonia as soon as he could swallow, and his pulse gradually returned. The whole thing lasted between one-half and three-fourths of a minute—estimated. He resumed his conversation where it had been discontinued and seemed very cheerful.

In about fifteen minutes he had another one of these attacks which lasted a little longer than the first, but from which he completely recovered. Following this he was given intravenous injections of caffeine-sodium-benzoate 7, 1-2 grains and watched for about half an hour, and when I left he was comfortable.

He had his fourth attack about half an hour after I left and in which he died. The nurse who was with him said the attack was similar in all respects to the other three. The effect on the patient was exactly that of a severe Stokes-Adams attack due to heart block. It did not come on, however, in the presence of heart block, the rate never was below 80, and there was no irregularity.

The exact underlying cardiac pathology is not entirely clear.

CARCINOMA RECTI*

By L. Wallace Frank, F. A. C. S., Louisville.

The patient from whom this specimen was obtained was seen by Dr. H. S. Eggers three weeks ago with the history of having been seen by him in April, at which time she came to him complaining of "piles." She refused examination and disappeared from his view. Later she again consulted him, which was about three weeks ago, stating that she still had "piles", and was going to be operated upon under local anesthesia, but did not want to do so until Dr. Eggers had examined her. She gave a history of having passed a small amount of blood per rectum in April, and of having a little tenesmus, that was all. In the last three months she had lost weight and had pain especially over the lower sacrum and coccyx with the passage of blood.

Her previous history was that about fifteen years ago she had an hysterectomy performed for carcinoma uteri, the uterus, cervix and adnexa being removed. Examination when we saw her disclosed a hard, ulcerating mass just within the anal sphincter which bled freely on manipulation, it was moveable both anteriorly and posteriorly, most of the growth being on the posterior wall. Blood count showed erythrocytes 4,000,000 leucocytes and differential count normal. The heart muscle was not as good as we would like to have it. She was 57 years old. The abdomen showed a mid-line scar through which there was an incisional hernia. We feared to inform her of the nature of her disease, but told her she had a tumor which must be removed, advising preliminary colostomy with later resection of the rectum.

Two and a half weeks the colostomy was performed, making the opening high in the sigmoid. At that time the pelvis was thoroughly explored and there were no enlarged glands nor evidence of carcinomatous lesions in the pelvis, neither were there any evidence of metastases in the liver or abdominal organs. Based on these findings we felt sure the tumor could be removed successfully with a fair prognosis.

During the time she had the colostomy the lower rectum was irrigated at intervals, and she was given increasing amounts of food of high caloric value. She began to improve immediately after the colostomy. Ten days ago we did the second stage, making an incision in the mid-line and working across to the sigmoid above the colostomy, turning in both ends, then clamping the meso-sigmoid and all the tissues in the pelvis drawing the sigmoid and and rectum downward. On account of the previous hysterectomy, and the fact that there was no cervix and no uterus, peritonealization of the raw surface which was left proved absolutely impossible. The rectum was adherent to the urinary bladder in front and was separated with some difficulity. A large gauze strip was then placed in the abdomen back of the sigmoid and rectum and the abdomen closed and sealed. The patient was then inverted in an exaggerated lithotomy position and the anus together with much diseased tissue and the growth removed, the entire posterior wall being thoroughly cauterized and packed. The gauze pad was extracted through the wound. She was on the operating table about two hours and showed considerable shock. She had a stormy twenty-four hours following which she began to improve. The intestinal function was held in abeyance for three days, defecation then occurred through the colostomy and this has occurred daily since. Her tempertature for the first six or eight days was 99.2° F., pulse 120 for a day or two then gradually diminished in frequency. However, two days ago we noticed the pulse began to rise and she seemed weaker, so today we gave her a transfusion of 500 c. c. whole blood following which there was no reaction and she is now decidedly better.

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*Read before the Louisville Medico-Chirurgical Society.

I wanted to exhibit the specimen because it is a rather interesting one. It will be noted that we removed quite a large section of the intestine. We might have left some, but if you leave a loop above, then when you get ready to section the sigmoid below you do not have enough tissue to bring it out of the abdomen, which of course increases the danger of the procedure.

The growth has been examined by a pathologist and pronounced adenocarcinoma.

DISCUSSIONS

H. S. Eggers: In the case reported the family requested that the patient be not informed as to the nature of her disease. When I first saw the woman in April she had hemorrhoids and spoke of her intention to be operated upon under local anesthesia. She refused examination at that time, and my first examination was made three weeks ago as stated by Dr. Frank. Examination revealed internal hemorrhoids and this large mass, which was hard, nodular and bled easily. The Wassermann reaction was negative.

J. W. Price: I have little to say except to congratulate both Dr. Frank and Dr. Eggers on their prompt diagnosis and the character of treatment employed. No one can criticise the procedure executed in this case. The two-stage operation I believe is recognized as the procedure of choice in dealing with rectal carcinoma. The plan of dissecting the sigmoid and rectum free from above simplified the final excision.

I would like to ask Dr. Frank in closing to give us his personal impression of the prognosis.

Louis Frank: This woman was hysterectomized fifteen years ago for cancer of the uterus. However, that fact should not cause us to believe the present tumor was a recurrence. It was absolutely and entirely a different type of growth. The Mayos have probably done more to elaborate the treatment of carcinoma of the large intestine and rectum than anyone else. The tumor exhibited might have been removed from behind by doing a Kraske operation, or the growth itself might have been extirpated from below; but where a tumor has existed as long as this one had, it metastasis had occurred in the glandular areas adjacent to the growth, it is impossible to remove these areas from below. This tumor had existed for quite a long period of time. We know that carcinoma in this region develops slowly. By the two-stage operation we not only have an opportunity to explore the interior of the abdomen completely to see if there are metastases higher in the cavity, but we also have an opportunity to see whether there as any metastases in the pelvis and to determine whether there are any additional growths.

We operated upon a patient about a year ago for carcinoma of the rectum where a similar procedure was followed. In that case the growth was much more extensive than the one here exhibited. There were some enlarged glands above the growth which were also removed. These glands may not not always be malignant, but even so every enlarged gland must be looked upon with suspicion as if it were already infected with cancer cells and should be removed.

Again, in some of the operations done from below the muscle is destroyed, and the patient who has an anus below without any control is much worse off than one who has a colostomy which can be taken care of and controlled by pads and other devices for that purpose. The two-stage method of operating has almost eliminated peritonitis following the removal of this type of growth, because aseptic closure is obtained above where the intestine is divided, the loop of intestine being pushed downward into the pelvis and the peritoneum closed over it, before the operation is begun from below. If infection occurs it is purely local and drains below just as any other infection will do.

We have performed several operations for carcinoma of the large intestine under the two-stage procedure during the last year where this type of operation was deemed best, and in others the one-stage method was used, with recovery of all the patients. In cancer of the large intestine on the right side, where the cecum and portion of the ileum are removed, we do everything in one stage because there is ample blood supply in that part of the intestine. In the transverse colon we have a more difficult problem, because there we know the blood supply is not of the best. In the majority of these cases I believe it is better to do a two-stage operation. Here, also, it is advisable to perform enterostomy for drainage, because the intestine is shut off for three or four days.

In the case reported the completed operation from above was not done with the greatest ease on account of the operative procedure which the patient had previously undergone. The entire sigmoid was adherent on the left side, the same side on which the growth was located, one broad ligament stump was attached to it, as were also the urinary bladder and vagina. These conditions had followed the previous hysterectomy which had been done from above and was quite radical. I had the opportunity of looking into the abdominal cavity and observe the effect of the original operation. The vagina had been been opened, of course, and the intestine was so firmly attached to the upper vaginal scar that it was a very difficult problem to separate it.

I think this woman will make a recovery. The out look in these cases is not always gloomy even though the local growth may be relatively extensive, and some of them are very extensive; yet it is astonishing how little glandular involvement there is in many of them, and that with the slow growth makes the ultimate prognosis very good, and to me it rather indicates that not nearly so many of these cases are inoperable as we have been led to believe. In a great many of them even though they appear inoperable by the size of the growth or the extent of the local ulceration, I believe we should open the abdomen primarily to see just how much spread there has been. So long as the involvement is absolutely local, we can eradicate almost everything in the pelvis by using the cautery and cut even much deeper than by the knife alone, and I belive we should look upon most of these cases as operable. By following the two-stage procedure described we will probably save many lives.

L. Wallace Frank, (in closing): Before performing the high abdominal colostomy in this case we carefully explained to the patient that she could keep herself cleaner and have better control with abdominal opening than she could with an artificial anus below.

As to the prognosis: In this case I think it is fairly good. Everything was thoroughly cauterized afterward and "cooked" for quite a while. I think what loose cancer cells there were present were killed with the cautery.

The method of resecting the rectum described is easier in a woman so far as the peritoneal work is concerned, than in a man where one has to watch the base of the urinary bladder and prostate. In this case the growth did not invade the vaginal wall although relatively close to it, yet we removed a portion of the posterior vaginal wall and closed it afterward. From a mechanical standpoint the operation is relatively easier than in the male. However, the abdominal part of the operation is much more difficult. Peritonealization in the male is not so hard. In the female on account of the broad ligament it is difficult but can be easily accomplished by simply turning the uterus backward and suturing it all the way around which gives a peritoneal covering.

I am of the opinion that the patient in the case reported will recover.

BOOK REVIEW

AN INTRODUCTORY COURSE IN OPHTHALMIC OPTICS. By Alfred Cowan, M. D., Assistant Professor of Ophthalmology, in the Graduate School of Medicine, University of Pennsylvia, with 121 Illustrations, many in colors.

F. A. Davis Company, publishers, Philadelphia, Pa. Price $3.50.

The main purpose in the preparation of this volume has been to convey a working knowledge of ophthalmic optics to students and practitioners. This volume is a compilation of lectures and laboratory notes used in the Graduate School of Medicine of the University of Pennsylvania.

DISORDERS OF THE NOSE, THROAT AND EAR. Problems of Deafness). By Aaron Roth, M. D., F. A. C. S., Attending Ear and Throat Surgeon Jewish Hospital, Brooklyn, Assistant Chief of Staff, Ear, Nose and Throat Department, Brownsville, E. N. Y. Hospital, Brooklyn. A Treatise in Popular Science Form. Non-Technical, Comprehensive, Instructive. With Special Illustrations by the Author.

Dealing with the functions, hygiene and affections of the organs of smell, voice and hearing—prospects of cure and principles of prevention and treatment.

Stressing the significance of ''Focal Infections'' in the nose and throat and their relation to constitutional disorders.

Sketching in perspective the mechanism of hearing in health and disease—summarizing the causes of deafness—explaining the value of mechanical devices to aid hearing—outlining the social and physical factors in the prevention of deafness.

Designed to serve the mutual interests of the public and the Medical Profession. Physicians and Surgeons Book Company, Henry and Pacific Streets, Brooklyn, New York.

EPIDEMIC ENCEPHALITIS (encephalo-Myelitis.) By L. M. Crafts, B. L., M. D., formerly Dean and professor of Nervous and Mental Diseases, Medical Department of Hamline University, Minneapolis, Minn.

Richard G. Badger, publisher. The Gorham Press, 100 Charles St. Boston.

It has been the author's purpose to present in ordered squence and comprehensive grouping what has up to the present time been established as accepted knowledge on the charcater and behavior of this remarkable disease. In preparing this volume a wide range of articles on all phases of the subject has been consulted combined with an extensive personal clinical observation from which a selected group of especially impressive cases has been chosen for inclusion in the text.

APPLIED BIO-CHEMISTRY. By Withrow Morse, Ph. D. Professor of Physiological Chemistry and Toxicology, Jefferson Medical College, Philadelphia, Second Edition, Revised and Reset with the co-operation of Joseph M. Looney, M. D. Assistant Professor of Physiological Chemistry, Jefferson Medical Collge. 988 pages with 272 illustrations. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $7.00 net.

For this new (2nd) edition the work was subjected to an extremely thorough revision. So heavy was the revision and so much new matter had to be added that the work had to be reset from beginning to end. It stands today without a doubt as the most up-to-date work on Biochemistry to be had. Some of the more extensive changes are:

Physical Chemistry.—Entirely recast from the standpoint of new concepts and incisively clarifying such topic as pH, colloids, osmosis, surface tension, etc.

Teaching Aids.—Many new ones have been introduced, especially the tables of molecular weights of proteids and new exercises on the chemistry of foods.

Chemistry of Sugar.—A complete revision, clearly stating the modern concept of the structure of starch, the role of sugar, chemistry of insulin and insulin substitutes.

New Analytic Procedures, such as those for the identification of amino-acids.

New Manometic Methods of Van Slyke—given in detail; some of them have not as yet been published by their describer.

Dr. Morse's Biochemistry answers questions which constantly arise in the minds of the general practitioner, the biochemist and the student—and answers them in a way which permits of no doubt or misunderstanding.

A TEXT-BOOK OF PHYSIOLOGY: FOR MEDICAL STUDENTS AND PHYSICIANS. By William H. Howell, Ph. D., M. D., Professor of Physiology in the School of Hygiene and Public Health, Johns Hopkins University, Baltimore. Tenth Edition, Thoroughly revised. Octavo of 1081 pages, 308 illustrations. Philadelphia and London. W. B. Saunders Company, 1927. Cloth $6.50.

Dr. Howell's "Physiology" has been a standard for 22 years. This new (10th) edition is the 33rd time the work has gone to press to meet demands of practitioners and students.

Since the last edition changes in our knowledge of physiology have taken place with great rapidity. Dr. Howell has observed these changes, weighed their importance, and, where desirable, has incorporated them.

With a view to the practical application of study, Dr. Howell has given main emphasis to facts and views which will be directly helpful in the study of general pathology. At the same time, however, he has included enough of modern research work to give an idea of the tendencies of present-day physiologic experimentation and study.

CLINICAL DIAGNOSIS BY LABORATORY MEHODS. A Working Manual of Clinical Pathology. By James Campbell Todd, Ph. B., M. D., Professor of Clinical Pathology, University of Colorado, and Arthur H. Sanford, M. D., Professor of Clinical Pathology, University of Minnesota (The Mayo Foundation); Head of Section on Clinical Laboratory, Mayo Clinic. Sixth edition, revised and reset. Octavo of 748 pages with 346 illustrations 29 in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $6.00 net.

For this new (6th) edition the authors have carefully revised each chapter of the book, a task which demanded considerable rearrangement, rewriting, and the addition of the many new advances in clinical pathology. Exact technic is given—the precise procedures to follow right down to the smallest detail. There is an important section on the use of the microscope, its parts, how to prepare the material, make slides, and interpret findings. Blood chemistry, of course, is given full presentation. The examination of the duodenal contents, tests for acidosis and other underlying principles, liver function tests, renal function tests, etc.

POTASSIUM AND TARTRATES. A review of the literature on their physiological effects, by Ralph W. Wesbster, Ph. D., M. D., Professor of Medical Jurisprudence in University of Chicago (Rush Medical College) Chicago, Illinois; Director of Chicago Laboratory, with a Digest and Bibliography of the Literature by W. A. Brennan, A. B.

This book is published at a time when new facts are being presented against the use in foods and drugs of cream of tartar, tartrates in general, and potassium salts. It is an accurate and complete compilation of the work that has been done on the physiological effects of the ions in question.

It is an entirely new book in that this is the first time that a complete digest of the literature on these subjects has been published. The bibliography forms the basis for a review of the literature by Dr. Ralph W. Webster—a review that puts into coherent and understandable form the findings that have been made.

As a reference work, it has a place in every scientific and general library, while physicians and laymen alike will get much useful information from Dr. Webster's discussion of the work done.

The Commonwealth Press, Inc., Publishers, 1112 S. Wabash Avenue, Chicago. Price, $2.50 net.

THE HUMAN BODY IN PICTURES. By Jacob Sarnoff, M. D. This illustrated teaching manual closely follows and describes in detail the various anatomical and physiological facts as presented in the reels of film slides and motion pictures. The films graphically portray the anatomy, physiology and embryology of the human body with the aid of explanatory animations, anatomical dissections and the action of living organs at normal rate and in slow motion.

At the Mayo Clinic, after having used the "Human Body Series" repeatedly at the Training School for Nurses, the Sister in charge writes:

"On the whole, I feel that the picture is of great value in the teaching of student nurses. The students were requested to write their opinion of it and they all agreed that the depiction of the circulatory and reproductive systems were excellent and of much profit to them."

(Signed) Sister Domitilla,
St. Mary's Training School for Nurses,
Rochester, Minnesota.

Physicians and Surgeons Book Co., Henry and Pacific Streets, Brooklyn, N. Y.

WOMAN'S AUXILIARY NOTES

Laurel County.

The Woman's Auxiliary, Laurel County Medical Society, was organized on January 7th, 1928. The following officers were elected:

President—Mrs. O. D. Brock.

Secretary-Treasurer—Mrs. M. Whitis.

Chairman, Social Committee—Mrs. G. S. Brock.

Chairman, Philanthropic Committee—Mrs. H. V. Pennington.

Chairman, Educational Committee—Miss Mabel Bryant.

Junior Member—Miss Virginia Brock.

JANE CRAWFORD'S GRAVE.*

By Mrs. A. T. McCormack.

The grave of Jane Crawford is located in the Johnson Cemetery, ten miles northwest of Sullivan, Indiana. It is marked by a small marble slab bearing the following inscription:

Jane Crawford

Died

Mar. 30, 1842

Aged 78 years

Blessed are the dead who die in the Lord.

Jane Crawford was the heroic woman of Green County, Kentucky who rode horse back sixty miles to Danville, Kentucky and there submitted to the first operation known as "Ovariotomy," performed by the unknown backwoods physician and surgeon, Ephraim McDowell, who later became world famous for this and other notable surgery.

Mrs. Crawford recovered from the operation and rode back to her home in Green County where she continued to live for some years. Later, with her family she moved to Indiana. Following the death of her husband, Thomas Crawford, she went to live with her son, the Rev. James Crawford, a Presbyterian minister, who lived on a farm just across the road from the cemetery where his mother, the remarkable Jane Crawford of pioneer surgery, now sleeps.

Perhaps some of the Auxiliary members may find an opportunity to visit this sacred spot during the coming summer wihle motoring in Indiana.

*This data was found in the Jan. 4th, 1913, copy of the Journal of the American Medical Association.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Union: The Union County Medical Society met for its annual dinner and election of officers at the Gibbs House at Morganfield, Kentucky at six p. m. on December 27, 1927. Those present were Dr. Grant McKeehan, Dr. D. C. Donan, Dr. J. W. Conway, Dr. G. B. Carr, Dr. H. B. Stewart, Dr. J. F. Lynn and Dr. T. P. Gray

After a sumptuous dinner the following officers were elected for 1928: President, Dr. G. B. Carr; Vice-Prcsident, Dr. H. B. Stewart; Secretary, Dr. David C. Donan; Delegate, Dr. J. W. Conway.

The following paid dues for 1928: Dr. W. H. Nunn, Dr. H. B. Stewart, Dr. G. B. Carr, Dr. J. W. Conway, Dr. David C. Donan, Dr. Grant McKeehan and Dr. J. A. Watkins.

The meeting was held in the parlor at the Gibbs House, and the program was an informal discussion of medical finance and management, participated in by all present.

It was decided on motion to have the next meeting at Sturgis, on the last Tuesday in January, after which the society adjourned.

DAVID C. DONAN, Secretary.

Fayette: At our annual meeting held December 13th the following officers for the Fayette County Medical Society were elected:

W. T. Briggs, President; T. M. Marks, Vice-President; E. S. Maxwell, Secy-Treas.

The Board of Censors consists of S. B. Marks, John C. Lewis, John W. Scott.

The delegates to the State Society are E. B. Bradley, John W. Scott, A. H. Barkley and L. C. Redmon.

E. S. MAXWELL, Secretary.

Hardin: At the regular monthly meeting of the Hardin County Medical Society, the following members were present: H. R. Nusz, C. W. Rogers, Rineyville, J. S. Bean, Vine Grove; J. W. Brandon, East View, and D. E. McClure, Elizabethtown.

The following officers were elected for 1928. J. S. Bean, President; C. W. Rogers, Vice President; D. Dent; D. E. McClure, Secretary Treasurer; J. M. English, Delegate; Alternate, C. C. Carrol; Censor, H. H. Nusz.

D. E. McCLUE, Secretary.

Caldwell: At a meeting in Princeton on Tuesday night, January 24th, 1928, with the following physicians in attendance: J. B. Wadlington, J. M. Moore, I. Z. Barber, W. P. Morse, W. C. Haydon, F. T. Linton, Z. T. Cunningham and W. L. Cash. The Caldwell County Medical Society was reorganized with the election of the following officers for the ensuing year; F. S. Linton, President; W. P. Morse, Vice-President; W. L.

Cash, Secretary-Treasurer; J. B. Wadlington, delegate to the State meeeting. J. M. Moore, I. Z. Barber and W. C. Haydon, board of censors. Z. T. Cunningham, being the oldest physician in attendance and one of the oldest in Western Kentucky, a motion carried, that the younger members of the society purchased him a present. Plans were discussed for making a more effective society for the coming year.

W. L. CASH, Secretary.

Perry: On December 12th, 1927, the Perry County Medical Society met at the Christian church of Hazard, and since this was Ladies' night the following members and their guests were present: Dr. and Mrs. J. C. Steele and daughter, Cleo, Dr. annd Mrs. J. G. Bowles, Dr. and Mrs. D. C. Combs, Dr. and Mrs. S. B. Snyder, Dr. Gross had as his guests, two nurses from the Health Unit, Mrs. Perry and Miss Goss, Dr. and Mrs. J. P. Bogg, Dr. and Mrs. R. L. Collins, Dr. and Mrs. B. S. Walden, Dr. and Mrs. W. E. Ray, Dr. and Mrs. N. G. Riggins, Dr. and Mrs. Dana Snyder, Dr. B. M. Brown and Miss Martha Wood, Dr. and Mrs. G. B. Wheeler, Dr. Geo. Boulous and Mrs. Lydia Hagan, Dr. Taylor Hurst and Mrs W. H. Hobbs, Dr. S. M. Richie, Dr. and Mrs. J. M. Ray.

Following the reading of the minutes of the previous meeting a letter of thanks was read from Dr. and Mrs. Z. M. Abshear for flowers sent to the doctor during his illness and confinement in Norton Infirmary of Louisville.

The program committee reported and the report being accepted the committee was discharged with thanks. The retiring president, Dr. W. E. Ray then addressed the society on the achievements of the past year. A vote of thanks was given Dr. J. C. Steele for his thoughtfulness in furnishing this society with cigars and cigarettes for the meeting.

The officers elected to serve for the new year 1928 were as follows: President, N. G. Riggins; Vice-President, Dana Snyder; Secretary-Treasurer, J. M. Ray; Delegate, B. S. Walden; Alternate delegate, A. M. Gross; Board of Censors, B. M. Brown, for one year; Taylor Hurst, for two years; Geo. Boulous, for three years. County Referee, A. M. Gross. Recommended by the Perry County Medical Society.

The meeting was adjourned to meet with Dr. J. P. Boggs at the next regular meeting on January 9th, 1928.

Fraternally yours,
J. M. RAY, Secretary.

Franklin: The Franklin County Medical Socitey m t in the Writing Room of the Capital hotel for the regular monthly meeting Thursday, January 5th, 1928, at 12:00 noon.

The president, F. M. Travis presided and the following members were present:

Drs. Vinn, Budd, Roemele, Darnell, Youman, Patterson, Wallace, Wilson, Demaree, Stewart and Minish.

Visitors from Shelby county were: Drs. W. H. Nash, E. B. Smith and Graham Lawrence, Shelbyville, Dr. T. J. McMurray, Simpsonville.

Reading of the minutes of the previous meeting were dispensed with by a vote of the society.

O. B. Demaree had charge of the program and read a most interesting paper on Epidemic Influenza, giving his army experience in handling hundreds of cases during the epidemic in 1918 and 1919. His paper dealt with this and former epidemics and showed that he had given much time and thought in preparing his subject. A thorough discussion of the subject followed, participated in by practically all who were present. All complimented Dr. Demaree on the way the subject was presented.

Election of officers for 1928 followed: C. E. Youmans, President; G. A. Budd, Vice-President; L. T. Minish, Secretary-Treasurer; John Stewart, Delegate; E. C. Roemele, Alternate.

The treasurer's report was made and accepted.

The Society then adjourned to the dining room here th retiring president, Dr. Travis entertained the society with a luncheon, after which a rising vote of thanks was extended Dr. Travis for his hospitaity.

L. T. MINISH, Secretary.

Foreign Prenatal Posters Available—The December number of Hygeia, published by the American Medical Association, has an interesting article, "Teaching Prenatal Care By Means of Posters," by Dr. Stuart B. Blakely, regional consultant in the Division of Maternity, Infancy and Child Hygiene. Accompanying the article are colored prenatal posters from China, Japan, India France, Russia, Germany, Lithuania and Latvia. Sets of these small posters may be obtained at a cost of twenty-five cents per set from the American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

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Being the Journal of the Kentucky State Medical Association
Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets.
Subscription Price, $5.00
Single Copy, 50 cents
Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., APRIL, 1928 No. 4

THE N.Y. ACADEMY
OF MEDICINE
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TULANE NUMBER---MEDICAL CLINICS OF NORTH AMERICA

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Malarial Hemoglobinuria.
Health Examination.
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Clinic of DR. ELIZABETH BASS,, Tulane University
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Clinic of DR. ROY H. TURNER, Tulane University
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Clinic of DR. H. W. BUTLER, Tulane University
Treatment with Oil of Chenopodium of Patients Heavily Infested with Intestinal Parasitic Worms.
Syphilis and the Slide Test.
Clinic of DR. RUSSELL C. PIGFORD, Tulane University
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Hypertrophic Osteo-arthopathy.
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Clinic of DR. D. R. WOMACK, Charity Hospital
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Clinic of DR. C. McD. SMITH, Tulane University
Echinococcus Cyst of Liver and Peritoneal Cavity.
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Clinic of DR. A. N. HOUSTON, Tulane University
Analysis of 88 Cases of Rheumatic Fever. Comparison with other Analyses.
Clinic of DR. M. MALLOWITZ, Tulane University
Residuals of Epidemic Encephalitis.
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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., APRIL 1928 No. 4

EDITORIAL

WHAT IS AN ANGSTROM UNIT?

The American and the English have used the ponderous unscientific standard unit of measurement in terms of yards and feet. The original unit was probably some ancient king's foot and distance from his nose to the extended hand.

The French with their desire for accuracy decided to take a more stable unit of measurement for it was found that such royal measurement changed with each succeeding king. They decided to use the distance from the north pole to the equator, which is one-fourth of the distance around the world from pole to pole, which is 393,700,000 inches. 1-10,000,000 of this distance was chosen as a unit of length and was called a meter, being 39.37 inches, which corresponds approximately to our yard measurement of 36 inches.

A millimeter is 1-1000 of a meter, which is about 1-25 of an inch. An angstrom is used as the unit of length in measuring wave lengths, and is 1-10,000,000 of a millimeter, consequently an angstrom is 1-250,000,000 of an inch.

A wave length is measured from crest to crest of the light wave. Color is determined by the length of the wave. The solar spectrum consists of the seven primary colors (vibgyor) as violet, indigo, blue, green, yellow, orange and red. This spectrum of colors make up what is known as visible light and it will be seen that violet is at one end of the spectrum and red at the other. The red waves of light are twice as long as the violet.

Using the angstrom as a unit of length, it was found that the length of the violet ray was 4000 angstroms and the length of the red wave was 8000 angstroms. The rays of light are not visible beyond either end of the spectrum.

Those rays next below the red are called infra-red, and are used in physiotherapy. They are the heat rays. Those beyond the violet are known as ultra-violet, which are produced artificially by the carbon arc lamp and quartz mercury vapor lamp, and have a wide therapeutic use.

The ultra-violet rays increase metabolism, calcium and phosphorus content of the blood, leucocytes and blood platelets. They are found most valuable in prevention and treatment of rickets.

The X-ray is next below the ultra-violet and its wave length is found to vary from 12 angstroms to .15 in length. The shorter the wave length the greater its penetrative power or hardness.

Below the X-ray are the gamma rays given off by radium, having a wave length of .1° to .015 A, which is 1-10 of 1-250,000,000 of an inch, which is 1-2,500,000,000 of an inch.

FOOD, NUTRITION AND HEALTH

The above caption is the title of the newest book of Dr. E. V. McCollum and Miss Nina Simmonds, published by the authors at Baltimore, Maryland.

Every doctor should have this book on his desk for it is written to meet the needs of the general practitioner for a non-technical account of the results of modern researches on food and nutrition. There has never been a time when so many people were interested in this subject, as now.

The essential facts necessary to an understanding of what can and what cannot be accomplished through diet are presented without the burden of the great mass of experimental data on man and animals upon which the present day knowledge in this field is based.

In no other department of preventive medicine is there so great an opportunity to improve the health and happiness of so many people as in the institution of those dietary reforms which would correct the widespread abuses of the digestive system, and replace the deficient diets now so widely used by others which approximate the ideal in their composition.

It is hoped that this book will contribute to the dissemination of knowledge of how to live so as to preserve health.

MUTUAL CONGRATULATIONS

The House of Representatives of the General Assembly of Kentucky has again responded to the popular confidence that the people feel for the medical profession. The State Board of Health was fifty years old on March sixteenth. For these fifty years our statutes have recognized the leadership of the practicing physicians of the State in public health and have squarely placed the responsibility for it upon their shoulders.

To the casual reader of the newspaper it naturally *appears* that one man or a few men must bear most of the brunt of the attacks from those interested in personal or party aggrandizement at whatever sacrifice of the public welfare. "Appears" is used advisedly in this sentence. Those behind the Ripper and Chiropractic legislation talked speciously of their desire to get rid of individuals, but the people of the state saw through this raw design to seize control of Kentucky's remarkable health organization so as to exploit it for personal and partisan purposes.

The medical profession of Kentucky points with pride to its achievements. It has a noble heritage from its great leaders of other days who have made their impress on the history of the State. Those who live now have a greater responsibility than ever before, because they have earned a greater public confidence than they had inherited. It is up to the profession to continue to merit this confidence.

"By their fruits ye shall know them." Since 1900 the average age at death in Kentucky has been raised from thirty-two to fifty-seven. It is important that we continue our work that maternity and infancy may be made safer; that, during pre-school age, defects that may later become deformities, shall be removed; and that, during school life, the developing citizen shall be taught the value of and methods in personal and community health. Typhoid fever, tuberculosis and other community diseases, developed in ignorance and caused by neglect must be eliminated as rapidly as possible. Venereal diseases must be reduced to their irreducible minimum. Dental hygiene must be made available for every child and must be known by every man and woman. The pre-cancerous stage must be recognized and relieved. People must be taught the value of systematic periodic examinations, so that developing defects may be promptly corrected.

It is because the medical profession is animated by these motives, that it is determined to do these things for and with the people of Kentucky, that the Ripper bill was killed by the Rules Committee of the House of Representatives. This bill, if it had become a law, would have made the non-political, non-partisan board, of which we have been justly proud for fifty years, into a plaything of the small group of politicians who are willing to debauch so many departments of Kentucky's government.

It is important that the story of the advocates of this Ripper legislation be preserved in the medical history of the taSte. During the campaign the tSate Board of Health was not mentioned in a single speech by either the Republican or Democratic nominee for Governor. After the election the leaders of the coalition forces in Frankfort assured representatives of the profession, and their friends, that no adverse legislation would be introduced during the session of the General Assembly. Doctor McCormack had been made director of flood control and relief by Governor Fields, and was continued in this position by the newly elected Governor, and instructed to proceed to Washington to assist our splendid congressional delegation in presenting the just claim of the counties in both eastern and western Kentucky, whose roads and bridges had been dstroyed by the 1927 floods.

The Chiropractic bill was introduced first. After a hearing before the House Committee on Public Health it was ordered reported unfavorably by a unanimous vote. On the next day the Ripper bill was introduced in the House and the committee, which on its merits, after a hearing of both sides had reported unfavorable, changed their minds, and without any further public hearing reported both bills favorably—giving the opponents of the Ripper bill no chance to discuss its obvious mistakes.

This group of selfish men had already announced to one and all that they would distribute the patronage, rewarding those faithful to them and punishing any who dared oppose. They advanced their bills through all the adventitious channels of political chance. They brought their Ripper bill up in the House ahead of the measures the Governor had advocated in his platform, had it recommitted when they found it was in danger and brought it out at the most opportune moment, but were chagrined to find it defeated by a vote of forty-six to forty-two.

Then in violation of all precedents in the Kentucky Legislature and of all orderly parliamentary procedure, they reintroduced the same bill in the Senate and passed it by an outrageous abuse of political patronage and privilege, such as has never before been witnessed in Kentucky. Had they been able to bring their bill up in the House, they never would, at any time, had more than forty-three votes. The best evidence of this fact is that it was never brought up, but, if they had had the fifty-one votes they claimed at any moment, at that moment the bill would have passed. This group never had any honest strength. They had no standing amongst the decent members of the medical profession. They were backed for a while by the artificial strength with which a political organization or any sumject, backed by promises of patronage, from sources however irresponsible, can surround itself, but it is always destroyed when the spotlight of public opinion is concentrated upon it. The victories in the House were not victories of any individual or any clique of any party or any group, but they were victories for the people of Kentucky and for the medical profession. If any faults have developed in those who occupy official places in the profession, it is the profession's responsibility to clean house that it may continue to merit public confidence. They have given the physicians of the State the opportunity to conduct its public health affairs and the profession must live up to the high standard which has been accepted by the people of the Commonwealth.

In other columns of this issue we are publishing a series of editorials from the Lexington Herald which contains much which will be read with interest by every physician in Kentucky. These are the arguments with which we need to be armed. They had most to do with winning the victory. Kentucky is indebted to its newspapers for a leadership in this fight that will eventually mean much to its people.

To the County and City Medical Societies, the Women's Clubs, the eLague of Women Voters and the Women's Joint Legislative Council, the Parent-Teacher's Association, the local organizations of the W. C. T. U., the county judges and fiscal courts, to both state-wide and local church organizations, the Chambers of Commerce, the Rotary, Kiwanis, Lions and other men's Clubs, the nursing organizations, to the whole citizenship of the State is this victory for the public weal due. "There is glory for all." It will be glory as long as we do our work for the improvement of the public health as effectively as in the past.

BISMUTH ARSPHENAMINE SULPHONATE (BISMARSEN)

Clinical observations on a new arsphenamine synthetic for intramuscular use in the treatment of syphilis was recently reported by Stokes and Chambers.[1]

The drug is administered in 0.2 gm. doses intramuscularly. The contents of the ampoule are readily dissolved in 1 cc. of sterile water, to which 2 minims of a 2% solution of butyn is added for local anesthetic effect. The technic of infection should be epifascial. The inner angle of the upper outer quadrant of the buttock should be used. The recommended initial dose is 0.1 gm. for the physically sound adult. Two injections a week of 0.2 gm. each, four courses of not less than twenty injections each, are recommended for average adult, with a total series of from forty to sixty injections. Rest intervals should be short (two weeks), or absent between the courses in early cases. The drug has apparently a slower healing effect than the arsphenamines, but the serological results are better and the clinical results are good, if not better, than that of modern intensive combined treatment with other drugs.

Complications of all types have been few. Observers have reported that they have not encountered such complications as jaundice, hepatitis, neuritis, irritable kidneys, hemorrhagic encephalitis, syphilitic neuro-recurrences, or any of the blood dyscrasias. Mild cases of exfoliative dermatitis have been reported.

The absence of therapeutic shock, the marked clinical results, and the symptomatic improvement makes it a valuable drug in the treatment in late cardiovascular syphilis.

The ease of administration and the increased effectiveness of the treatment of early syphilis should go far in the prevention of late syphilitic manifestations. C. N. K.

[1] Stokes and Chambers: Bismuth Arsphenamine Sulphonate. Jour. A. M. A. Vol. 89 (Oct. 1927) p. 1500.

Treatment of Dislocation Caused by Infantile Acute Osteo-Arthritis in Hip Joint.—In cases of osteomyelitic dislocation of the hip joint in childhood, nonsurgical treatment invariably fails, either totally or partially. Of course, surgical steps must be deferred until the causative inflammatory process has cleared up. In the fifteen cases reported, the immediate result was uniformly excellent. In one case the reduction is perfect after eight and a half years, in five cases, after from one year to one and a half years, in others, conditions are promising but sufficient time has not elapsed for passing judgment.

ORIGINAL ARTICLES

ACUTE LYMPHATIC LEUKEMIA*

By WILLIAM EDGAR FALLIS, M. D. Louisville.

Acute lympatic leukemia is a progressive fatal disease, of unknown origin, characterized by an acute onset, fever, marked prostration, and a tendency to necrotic or gangrenous processes in the mucous membranes of the mouth and throat, hemorrhages from the mucous membranes, with no constant enlargement of the lymph glands, liver or spleen. The blood picture shows severe and progressive anemia and a lymphocytic content varying from normal to an enormous pathological increase.

The causes of this condition are so far wholly unknown; it is a disease of early adult life.

The symptomatology is rather indefinite or atypical. The onset of the disease is sudden and may or may not be accompanied by a chill. It presents the clinical picture of an acute infection and is usually accompanied by a skin eruption which is of short duration; profound prostration is the rule. There is a general aching with fever progressing in height, and in some instances nausea and vomiting. Sore throat or mouth with difficulty in swallowing are usually prominent symptoms in the early stages.

The picture is one of a severe infection attended with a stomatitis, bleeding from the gums, and tonsillar swelling following by the general tendency to hemorrhage. The majority of these cases, unfortunately, do not present marked glandular enlargement at the onset, and it is not always a prominent feature in the later development of the disease.

The spleen and liver are seldom enlarged at the onset, though a moderate or extreme enlargement is frequently present later.

The urine contains an excess of uric acid; albumin and casts are also present.

Like other manifestations in the disease, the blood picture is not definite in the early stage, and the usual distinctive pathognomonic lymphocytosis does not make its appearance until at some later period.

The leukocyte count frequently reaches 40,000 in a few days, and a count of 200,000 may be present, as has been recorded by several authorities. A common feature of the early blood picture is a relatively high polymorphonuclear cell count, which, within a few more days, is replaced by a lymphocyte count which dominates the picture to the end, and ultimately constitutes from 90% to 97% of the white cells present. In many of the cases the early blood picture is normal in every respect.

There is a secondary anemia which shows a tendency to increase in severity as the disease progresses; the hemoglobin follows very closely the the scale of the erythrocytes, and the color index is usually normal or low.

The diagnosis is not always easily made in the early stages and will tax one's power of deduction considerably, when, as the following case report will show, the blood picture is normal and the glandular enlargements are not present to help fill the missing links in the chain of evidence.

Since the treatment of the condition is purely symptomatic, I will leave that phase to your discretion.

The prognosis is very bad; in all authentic cases the patients have died; in a few questionable cases they have recovered.

The post-mortem findings are essentially those of the chronic stage except in an exaggerated form, since the time of the action is much shorter and more severe. The microscopical section shows a marked lymphatic invasion of all the glandular structure,—lymph glands, spleen, liver, kidney, mesenteric glands, etc.

The following case report is, in my opinion, worthy of your consideration, and I will try to present it to you in the shortest possible time.

M. K., male aged 29, white, single, minister, a stout, robust, athletic type of person having led a very active life until the last two months, when he noticed that he became exhausted upon the least exercise, even fast walking would fatigue him.

The family history is negative. Father and mother living, aged 62 years, in good health. Four brothers and sisters all living, and in good health. No history of tuberculosis, malignancy or insanity.

He had the usual diseases of childhood with out complications. He had a rather severe attack of influenza in 1918, but made a complete recovery. His tonsils were removed in 1919. He also had a series of sinus infections with several unsatisfactory operations. In September, 1926, he was operated again for the antrum condition, and while this relieved the local distress he never felt well following this operation. He had a series of boils which were located on his right arm and in the axilla which lasted from October until the first part of December, 1926. A few days before Christmas he had a red rash appear upon his entire body which persisted for a few days and finally disappeared. He had a great deal of pain in his right side and hip which eventually localized under his rib on the right side.

---

*Read before the Jefferson County Medical Society.

He came under my care January 29th, 1927. His chief complaint was pain in his right hypochondriac region and exhaustion with the least exercise. Temperature 99° F., pulse 108, respirations 18 and a little labored.

Physical examination revealed the fact that his right pleural cavity contained a small quantity of fluid. There were no rales and no history of any recent respiratory infections. The left pleura and lung were apparently normal. There was no abnormality in his heart sounds or location that I could detect at this time, and I could find no enlargement of his liver or spleen or any unusual findings about his abdomen. There was no enlargement of the superficial lymphatic glands. The reflexes were normal and the eyes responded properly to light and accommodation. The intestines and kidneys were acting well. Urinalysis was negative except a trace of albumin and indican.

I saw him again in two days and there was no appreciable change in his condition except the pleuritic effusion on the right side was more apparent. I sent him to the hospital and removed one-half gallon of clear straw colored fluid, which was sterile, and contained only a few lymphocytes. While the removal of the fluid from the pleura somewhat decreased his respiratory distress, the pain in the right hypochondriac region was greatly increased requiring morphine for relief. This pain was relieved after three days when it was apparent that the effusion was returning. After five days the paracentesis had to be repeated to relieve the embarrassment to the respiration, with an increase again of the pain in his side, which required morphine for relief.

The blood picture January 31st, 1927, showed hemoglobin 80%, leukocytes 12,000, erythrocytes 4,500,000, large lymphocytes 14% ,transitional 3%, poly morphonuclears 83%.

It was necessary to aspirate the right chest every five days for relief of the embarrassed respiration, and after the third paracentesis the fluid was of a pecular cherry-red color, which remained until the end.

February 8th, 1927, after the pleura was aspirated, the chest was examined with the aid of the fluoroscope and plates were made which showed a mass in the posterior mediastinum extending from the second to the sixth interspace and more on the right side. About this time the superficial veins of the right chest and upper abdomen became markedly enlarged, and the current of blood flowing through them could be demonstrated coming from above downward, which was nature's means of returning the blood to the heart through the inferior vena cava because of the blocking of the superior.

February 15th, examination showed some enlargement of the liver and the notch in the spleen could be definitely felt, but there was still no enlargement of the superficial lymphatic glands. Blood picture: 80% hemoglobin, 30,000 leukocytes, large lymphocytes, 32%, small 4%, mononuclears 6%, transitionals 1% poly morphonuclears 57%.

Urinalysis: clear, alkaline reaction, trace of albumin, hyaline and granular casts, abundance of pus cells (lymphocytes), occasional erythrocytes. Wassermann: negative, blood culture negative, sputum examination, no tubercle-bacilli, few streptococci in clumps, micrococus tetragenes, very little pus.

February 21st, liver markedly enlarged, could be easily felt three inches below the costal margin. Spleen easily palpable and larger than before with the notch plainly felt. Other nodules felt along the course of the great abdominal vessels. Slightly enlarged superficial lymphatic glands of the cervical, axillary, and inguinal regions. Blood picture: hemoglobin 80%, erythrocytes 3,800,000, leukocytes 14,000, (large) lymphocytes 70% (small) lymphocytes 10%, large mononuclears 8%, poly morphonuclears 10%, basophiles 2%. Urine cloudy (pus), filled with lymphocytes. Numerous hyaline and granular casts.

Many small petechial spots appeared under the skin of the lower legs, and also the arms, and gradually covered the entire body. Bleeding from the gums, legs and conjunctivae was present. The liver, spleen and superficial lymphatic glands enlarged very rapidly.

February 26th, the blood picture was: hemoglobin 80%, leukocytes 49,200, erythrocytes 3,800,00, lymphocytes 95%, transitionals 4%, poly morphonuclears 1%. Urine about as usual,—many hyaline and granular casts.

February 28, gave X-Ray treatment,—very small dose. March 1st, blood picture as follows: hemoglobin 70%, erythrocytes 3,000,000, leucocytes 3,200; large lymphocytes 44%, small lymphocytes 10%, mononuclears 3%, polymorphonuclears 44%. Liver, spleen and lymphatic glands apparently slightly decreased from the previous record, and patient somewhat more comfortable.

The patient remained in about the same condition until his death which occurred on March 4th, 1927.

This man's family was kind enough to allow us to make a post-mortem examination. The costal cartilages were severed on either side of the sternum and the heart, great vessels and lungs were carefully examined. The pericardium was smooth and of normal color and consistence. The heart was about normal in size. The mediastinal space to the right and posteriorly contained a large, fairly firm mass, which was maing enough pressure upon the large superior veins to obliterate its lumen. There was no pathological condition in either of the lungs or the pleural cavities.

The abdominal cavity was opened. The liver measured 18x13x8 inches, the spleen was 11x9x6 inches—both kidneys were about three or four times their normal size, and there were numerous mesenteric glands as large as a baseball. All of these structures showed gross lymphatic infarcts.

Microscopical examination showed a marked invasion of the vessels and surrounding tissue with lymphocytes.

There are a number of my colleagues present who saw this case, and who were a great aid to me in finally arriving at a definite conclusion. I hope that they will discuss it freely.

DISCUSSION

W. H. Allen: I had the opportunity of seeing Dr. Fallis' patient several times and made several different blood examination,—Widal, Wassermann, etc., and also several urinalyses. The Widal and Wassermann were negative, and the blood count in the beginning showed nothing of any special significance. The urinary findings were similar to those usually found in cases of acute lymphatic leukemia.

The first blood examination, as I recall, showed leucocytes 10,000 or 11,000 with a differential count of 35 per cent lymphocytes. About a week later the leucocyte count had increased several thousand with a correspondidng increase in lymphocytes. I made a third count a week or two later, and at that time the leucocytes had increased to 49,000, with a differential count of 92 per cent lymphocytes, the majority of which were of the large type,—a typical blood picture of acute lymphatic leukemia. This was about a week prior to the patient's death.

About the same time I saw another case very similar to the one reported. This patient complained of exhaustion, had daily elevation of temperature, and was constantly losing weight. His blood count showed about 11,000 leucocytes with 35 per cent lymphocytes. His symptoms continued and several weeks later another blood count showed an increased leucocytosis with an increased lymphocyte count. His cervical glands became enlarged bilaterally. His leucocyte count increased to 45,000 with 84 per cent lymphocytes. Lymphatic leukemia was suggested on the blood report.

To remove every possible focus this patient's teeth were x-rayed and several suspicious areas found. These teeth were extracted and shortly afterward his symptoms subsided, his leucocytosis was reduced, and the last count made a month or more later showed 6,300 leucocytes though still 60 or 70 per cent lymphocytes.

This patient recovered and is apparently well and active today.

I. T. Fugate: I made several roentgenographic films of patient's chest in the case reported by Dr. Fallis. The first one, which unfortunately lost, showed an unmistakable tumor-mass in the right mediastinum posteriorly. At that time there was probably some effusion in the left base. However, the only conclusion at which we could arrive was that there existed a tumor-mass in the posterior mediastinum. Its exact character could not be determined.

In a short time after the first examination a definite diagnosis of acute lymphatic leukemia was made. Dr. Fallis consulted me with reference to roentgen ray treatment. Although we knew that the patient was suffering from a fatal disease, and in view of the fact that drugs could do so little for this condition, we decided to see what we could do for him in the line of x-ray therapy. A few similiar cases have come under our observation, but the ultimate outcome was the same, the patients all died. The patient was given small doses of x-ray over the spleen, chest, long bones and lymph spaces. The treatment, from his statement, certainly made him very much more comfortable. Examination five days before the patient's death showed that the mediastinal mass had greatly decreased in size, but at that time there was a smaller mass noticed in the left infraclavicular region.

The best authorities in this line of work state that while it is a well know conclusion that acute lymphatic leukemia is fatal, yet small doses of x-ray adds greatly to the patient's comfort and evidently prolongs life.

We have under observation at the present time two patients with chronic lymphatic leukemia, one living after two and one half years and the other after three years. Both these patients have been treated with small doses of x-ray from time to time. Certainly they have lost considerable weight, but are living in comparative comfort and from indications at this time they should live for a number of years.

As to the leucocyte count: I believe in Dr. Fallis' case the leucocytes never exceeded 50,000. The leucocyte count in these cases will oftentimes reach 100,000, 500,000 and even higher. In this case, as the essayist has told you, this man suffered great discomfort and I am sure he will bear me out when I say that after each series of x-ray his condition became very much more comfortable and he would always beg for further treatment. In this way we were able to keep this man fairly comfortable until a few days before his death.

W. O. Johnson: I have seen eleven cases of lymphatic leukemia in my experience, and I think it would be of interest at this time to relate some of the cases briefly.

The first patient I remember quite well was sent in from accident ward with diagnosis of acute splenitis; temperature 101° F., extreme pain over spleen; spleen about two finger breadths below costal margin; and leucocytes 3,200, erythrocytes 3,800,000, hemoglobin 85 per cent. The patient's condition remained the same for three days, then his leucocyte count suddenly rose to 40,000 and purpuric spots appeared over body and mucous membranes. The patient died on the twelfth day from acute lymphatic leukemia.

The second patient came in the same month with practically the same symptoms and picture, and only lived eight days.

The third patient was sent in with the diagnosis of tuberculosis and pleuritic effusion, with leucocyte count of 13,000, hemoglobin 75 per cent, erythrocytes 3,500,000. The removal of about 800 c. c. of blood-tinged fluid suggested the possibility of maligancy, but after a week or so the leucocyte count rose to 22,000 and gradually increased to 84,000 with small lymphocytes 95 per cent. The patient died within three weeks from lymphatic leukemia.

Another case was that of a patient aged 46 years who was admitted with the diagnosis of lymphosarcoma of the left supraclavicular region. This patient responded beautifully to three light x-ray treatments, but after about three months he had an acute exacerbation of the disease and died within ten days of acute lymphatic leukemia.

One of the most interesting case was a man who was brought into the medical department with a diagnosis of acute empyema of the gall bladder. He had a leucocyte count of 15,000, temperature 100° F., very excruciating pain over the gall bladder and rigidity of the abdomen. The diagnosis was confirmed and the patient operated upon. The gall bladder was found greatly enlarged and distended with blood. The patient's leucocyte count gradually rose to 29,000, then 100,000, and he died after a prolonged period from lymphatic leukemia.

The long existence of the disease before the blood picture changes appear leads one to infer that the primary pathology is in the lymphatic structures, and that hemopoietic changes are secondary.

All of the foregoing cases were considered acute disease and they were all in people more than 31 years of age. The roentgen-ray was tried but with no marked beneficial results.

I am greatly indebted to Dr. Fallis for allowing me the privilege of seeing the patient in the case he has presented.

William A. Jenkins: I always hesitate to discuss a paper or presentation when I can add nothing of a constructive nature. Lymphatic leukemia is not well understood; we do not even know its etiology. The idea is that it is strictly infectious. I disagree with those who have written on the subject in one respect, and that refers to the point of beginning in the lymphatic structures. The consensus of opinion now among men who are doing a large amount of this kind of work is that the bone marrow is primarily at fault in this condition just as it is in myelogenous leukemia. This looks reasonable because improvement sometimes follows roentgen-ray treatment which is always applied over the long bones. It is explained that there is an abnormal type of cell in the bone marrow which is responsible for the production of both lymphatic and myelogenous leukemia, this cell being of the lymphatic type.

The diagnosis is sometimes made with difficulty, more particularly in those rare types of cases that are known as aleukemic leukemia. These patients may live for a number of years and present all the symptoms and yet we may have to search the blood repeatedly before we are able to determine that they have real leukemia.

I have nothing to say regarding the treatment more than the other gentlemen have said. I have under observation quite a number of leukemic patients and they have all been referred to gentlemen who are experts and specialists in roentgen-ray work. Since that has been done I am happy to say there have at least been some most miraculous remissions, the patients feel well and it is difficult to persuade them that they are not well. Death generally occurs within a year eighteen months in the acute cases. Chronic case last longer, perhaps as much as three or four years.

Virgil E. Simpson: I wish to commend Dr. Fallis on the care with which this case was studied and presented.

The final arbitrament in the matter of diagnosis of these cases thought to be acute leukemia rests on recovery or death. A diagnosis on a blood picture alone should not be made. This is true of all of the anemias, since the correct diagnosis must rest on clinical findings as well as on those of the laboratory. Admittedly true of the chronic types it is especially so of the acute forms. In acute lymphatic leukemia, the outstanding feature of the laboratory findings is an increase of the lymphocytes which are normal cells. A mere increase of normal cells, while suggestive, can not have the diagnostic significance of abnormal cell findings. It must also be remembered that acute lymphatic leukemia does not have the same relation to the chronic type as does acute myelogenous leukemia. High lymphocytosis is no infrequent condition in acute infections though leukocytosis is admittedly the rule.

The case Dr. Allen mentioned at one time had only six or seven per cent of polymorphonuclears. I saw the man in consultation and prior to that time two or three blood examinations had been made in Dr. Allen's laboratory. Regardless of the opinion of the physician in charge and the fairly definite statement of the laboratory worker, I expressed the opinion that it was not a case of acute leukemia. The patient's teeth had been extracted after x-ray study, not all at one time but in series, and we were particularly interested in attempting to obtain cultures from the teeth as they were extracted. Each of them in turn as extracted showed micro-organisms which are normal in the buccal acvity. The man improved after the first extraction. There was one tooth concerning which the roentgenologist was in doubt and this was allowed to remain; but as the patient did not recover as rapidly during the following ten days or two weeks as we thought he should, that tooth was extracted. This man did not have acute leukemia because he is living today and enjoying apparently good health.

There are a few striking features about acute leukemia that stand out rather distinctly. One is progressive muscular weakness and the early easy fatigue that is most uniformly present in these cases. These patients are rapidly driven to bed from which they rarely ever succeed in escaping. The blood picture necessarily changes rapidly because of the short duration of life. In all cases of leukemia we may expect frequent blood changes from the time the patient is first seen until exitus occurs. The blood picture in Dr. Fallis' case was probably influenced more or less by the x-ray treatment the patient received.

As Dr. Jenkins has said in chronic leukemia the blood picture is entirely different and the changes less rapid. I think perhaps as many mistakes are made in the diagnosis of acute leukemia or in infection with acute leucocytosis as there are in the diagnosis of the chronic type. In the chronic type of leukemia where the blood picture has not yet become definite even though splenomegaly is present, we are sometimes in doubt for a period of months as to the real diagnosis; but we are not in doubt so long in acute leukemia which is more spectacular in character and hastens the untimely end. Before the end is reached, however, the diagnosis can usually be made by persistent study of the blood picture coupled with the clinical picture. It is true we are always in doubt in those cases which are not acute leukemia, but are due to infection of some kind which we are not able to remove as we fortunately were in the case mentioned a few moments ago. Acute lymphatic leukemia is the most acutely malignant type of the leukemias. Its recognition is always difficult and the cause remains unknown. The onset is abrupt and often there is present some acute infection such as tonsillitis which fogs the picture. Even the early appearance of enlarged lymph nodes does not clarify the situation as this condition is found in other diseases. Tularemia is a ready illustration presenting such phenomena. Hemorrhagic tendencies are more helpful and these may be severe. Retinal hemorrhages are distressing and cerebral hemorrhage may prove fatal. The blood picture may take on a pernicious type with high color index and marked changes in the red cells. I have never seen a high leucocytosis, 50,000 being the highest. There is a progressive dimunition in polymorphonuclear cells even to the point of extinction. If there be a character blood picture it is that of an increase in the large lymphocytes and undifferentiated mononuclear cells. I have never seen a case with an enormous spleen nor one interrupted by remissions. It is always fatal, therefore, a consideration of therapeutic measures is futile.

R. Alexander Bate: I have enjoyed this second hearing of the paper presented by Dr. Fallis. His first report was before the Louisville Society of Medicine. Although I did not have the pleasure of seeing the patient before the final diagnosis was made, I do not believe any reflection upon the diagnosticians in this case exists as the symptoms reported were insufficient. The information obtained by blood examination, however, verified the final diagnosis in every respect. The gall bladder complication reported manifests the serous and mucous extravations of the disease. Enlargements of the spleen, liver, kidneys, lymphatics, the serous effusions and the leucocythemia observed at the autopsy make this a classical case of leukemia.

I believe leukemia is a disease of the hematopoietic system. Early reports show that in nearly all cases some type of infection had previously existed, particularly malaria and such diseases as would produce blood changes. The ductless glands play an important part in these cases. I do not believe it is fair to regard any condition as incurable until we are aware of the true diagnosis.

D. Y. Keith: I have seen quite a number of cases of acute lymphatic leukemia. The most of them have been in children from ten months to four or five years of age. I believe such cases are more common than Dr. Fallis' report would indicate.

While no permanent results are to be expected from x-ray therapy, it is a fact that the patient secures temporary relief from this method. No case has been cured by x-ray therapy or any other treatment unless there was some doubt in the diagnosis. Relief from pressure is obtained by a small amount of radiation.

In the case mentioned by Drs. Allen and Simpson there were enlarged cervical lymph nodes on both sides. As he was having no symptoms from pressure in the neck or chest, we advised again radiation but insisted on removal of the teeth which showed, as we remember, six apical abscesses. We saw stained blood specimens from this patient and apparently they were tyical of an acute lymphatic leukemia. We shall watch with a great deal of interest and note if his improvement is to be permanent.

Wm. Edgar Fallis, (in closing): I wish to thank the gentlemen for their liberal discussion. The case reported was a very unusual one to me. This happens to be the third patient with acute lymphatic leukemia that I have encountered during the last three years. The other two died before I was able to make the diagnosis. I feel rather proud of the fact that we were able to arrive at a definite conclusion in the case reported before the patient died. I did not intend to cast any reflection upon the ability of any of the physicians who saw this patient because an accurate diagnosis was not made earlier. It was not a typical case, it was atypical from the beginning. It was not until the patient had been under observation for about thirty days that we were able to get a line on the condition which would lead us to a proper conclusion.

As to the question of infection: This feature was fully considered. In the beginning the patient had a polymorphonuclear count representing 67 per cent of his entire leucocytes, consequently we were on the lookout for some kind of an infection. Perhaps the increase in polymorphonuclear cells was the result of an antrum disease and the series of boils which he had just prior to the time when the lymphatic condition became definite.

We have absolutely no way of determining where the disease primarily began. It may have been in the bone marrow. However, from my postmortem observations, from the early symptomatology, the pleural effusion and the roentgen-ray examinations, my opinion is this man's primary lesion was in the posterior mediastinal space. That was the feature which caused him to apply for relief, and the earliest departure from the normal that we could find in his physical condition was beginning pleuritic effusion. He had no history of any constitutional symptoms; he was large and robust; he had no family history of tuberculosis, malignancy or anything else. I was totally at sea concerning the primary site of the disease until the occurrence of dilatation of the superficial veins under the skin of the right side of the chest which caused me to conclude he had obstruction in the mediastinal space.

So far as roentgen-ray therapy is concerned: We did not give the patient x-ray treatment with the hope of effecting a cure. However, he had so much pain and tension and complained of such intense discomfort in his right side that we thought perhaps small doses of x-ray would reduce the tension and congestion, and fortunately it did afford him some relief.

RECURRENT PERINEAL CARCINOMA*

By Bernard Asman, M. D. and J. Duffy Hancock, M. D., Louisville.

I am very sorry indeed that Dr. Asman is unable to be present tonight. However, because of several interesting features this case presents, and because of the fact that I had seen the patient with Dr. Asman at various times, he has asked me to make this report for him.

Mr. J. V., aged 50, white, widower, mechanic, presented himself in March, 1918, complaining of a feeling of pressure in the rectum, the presence of moderately large hemorrhoids and the passage of blood and mucus at times in the stool. His family history was negative except that his father died of cancer. His own previous history was essentially negative except for symptoms connected with his present illness. He stated that in 1904 he fell and the spout of an oil can went through his anal canal into his rectum. The injury did not appear serious and the only symptom he had was an occasional sharp, shooting pain in the rectum. This persisted until about 1915 when the pains became worse and he noticed a beginning protrusion of hemorrhoids. Later he began to pass small amounts of blood and mucus, lost considerable weight and strength, and at a time we first saw him, the case appeared to be hopeless.

Upon examination the hemorrhoids were found to be present as described and there was a large ulcerating mass in the rectum which nearly occluded it. The patient was advised to have a permanent colostomy in order to relieve the impending obstruction and to give him relief from the irritation caused by the passage of fecal matter through the carcinomatous rectum. While it seemed that he must certainly have intra-abdominal metastases, we promised to explore the abdomen at the operation and if no involvement other than that in the rectum could be found, an excision of the rectum would be performed as soon as his condition permitted.

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*Read before the Jefferson County Medical Society.

On March 19, 1918, the colostomy was done, and following our usual custom and attempt was made to construct a sphincter in the sigmoid at the site of the new opening. To our surprise there were no enlarged mesenteric glands beyond the rectum and the under surface to the liver was free of any secondary deposits. He improved rapidly after the colostomy and before he left the hospital his rectum was excised through the perineum. The perineal wound healed nicely and his new sphincter functioned very satisfactory. He returned to his work and had no further trouble until six years later, in the spring of 1924. At that time a firm mass was noted in the perineum and since then he has undergone five operations for recurrences in that region.

On July 5, 1924, the first of these operations was performed, and the tissue excised was reported as "adeno-carcinoma probably of rectal origin." Again the perineal wound healed nicely and he was able to return to his work.

On October 21, 1925, he was again operated upon for a mass in the perineum and the pathological report of the tissue removed at this time was "chronic inflammatory tissue with no evidence of malignancy." We feel sure, however, in view of subsequent events, that this mass was malignant and that the microscopic sections probably did not include the malignant area. Again the wound healed satisfactorily and he returned to work.

Since then, however, he has had a recurrence about every six months and has been able to do little or no work. He was operated upon June 14, 1926, December 20, 1926, and July 29, 1927. The pathological report at each of these times was, "adeno-carcinoma probably of rectal origin." At the two operations preceding the last there was considerable hemorrhage and post-operative shock, but the perineal wound healed both times. Following the last operation, however, the wound did not heal and the patient at present is confined to St. Joseph's Infirmary, too weak to appear before you tonight and probably will not recover this time. His liver is not enlarged and there is no ascites or other signs intra-abdominal growth present. His urinary bladder and urethra have never been involved although the growth several times seemed to extend to these structures.

The interesting features of this case, as they appear to us, are first: the history of the injury to his rectum in 1904 followed eleven years later by the appearance of hemorrhoids and a slowly enlarging growth in the rectum; second, the absence of intra-abdominal metastases even after the tumor had been present for some time (showing the established tendency of such tumors to metastasize rather late); third, the recurrence in the perineum not appearing until six years after the first operation; fourth, the satisfactory sphincteric control of his colostomy during all this time; fifth, the freedom from involvement of the urinary bladder and urethra; and sixth, the fact that hemorrhoids often mean more than a simple varicosity and prolapse of the mucous membrane.

DISCUSSION

George A. Hendon: I would like to say that, in intestinal operation and injuries which involve extensive areas of the peritoneal structures, we have a method of continuing nutrition that will sustain the patient without any effort on his part for considerable period of time. By this method nutrition is introduced directly into a vein. For this purpose glucose and saline solutions are generally employed.

In one case of intestinal obstruction which came under my observation, where nutrition had to be sustained by some extraneous method to keep the patient from starving, I conceived the idea of placing a cannula in the vein and attaching it to a reservoir containing a solution of glucose and saline. In this way nutrition was sustained for period of eight days and the man survived. During that time he took nothing by mouth.

In another case the method was used for ten days, which proved too long, as the patient had a second obstruction and died on the tenth day. However, during that period he developed a definite pneumonia involving the lower lobe of the left lung. During the ten days he was able to retain nothing taken by mouth. He had suppurative appendicitis followed by intestinal obstruction. The attack of appendicitis began eighteen days before he came under by care. The abscess cavity was only opened and drained, but the operation was done for obstruction. A high enterostomy was performed. Within a week it became evident the patient was starving, so we instituted the method I have mentioned, —which we are pleased to call venoclysis,—and by this means kept him alive for ten days and fourteen hours until he had a subsequent obstruction.

I believe this plan of management would be applicable in cases such as Dr. Hancock has mentioned. In many these cases where we perform colostomy or intestinal anastomosis, the patient's nutrition must be maintained independent of the alimentary canal, and under such circumstances the plan I have described may be a life-saving measure. The alimentary canal may be placed at rest by this means during a considerable period of time. If the function of the alimentary canal can be suspended for a period of three, four, six or even ten days, then we may hope to restore regular function by reason of the alimentary vacation. I have employed venoclysis in twelve cases. My mortality has been over five per cent, but the method was used only in hopeless cases. If adopted as a routine measure in all extensive work on the intestinal tract, I believe that many lives could thereby be saved.

L. Wallace Frank: There is one point in connection with Dr. Hancock's report that I especially wish to emphasize, and that is the method employed in handling the case. In my opinion the great length of time that the patient was without recurrence as due to the type of operative treatment. The method used is to my mind the logical way of treating rectal malignancy, that is by abdominal section first and the establishment of a permanent colostomy, and later the extirpation of the rectum. At the time of abdominal section the liver can be examined for metastatic nodules, and also an accurate knowledge of the amount of lymphatic involvement is obtained. Furthermore, by diverting the fecal current the local irritation is diminished and the rectum can be properly cleansed for the second step in the operation, namely its removal. In any operation from below without a previous exploratory section one can never be certain whether there are involved glands higher than the operation goes, nor does the operator know whether or not there has already occurred liver matastasis.

J. Duffy Hancock, (in closing): I thank the gentlemen for their discussion. I believe Dr. L. Wallace Frank is absolutely correct in his statement that all patients with rectal carcinoma should have a preliminary colostomy. It is also important at the preliminary abdominal section to determine whether metastasis has already occurred. The record of this case shows what we have all understood to be true, that is, in rectal carcinoma metastasis is always a late manifestation.

In the case reported neither roentgenray therapy nor radium was used after removal of the perineal growth. Whether any benefit could have been accomplished by this form of treatment cannot be determined. It may have had some influence in prolonging the periods of freedom from recurrence.

Dr. Hendon's suggestion is an excellent one and is well worthy of our consideration. I believe venoclysis might be advantageous in all cases where nutrition must be maintained, whether following serious illness or surgical operation, and at the same time the alimentary canal must be placed at rest.

COMBINED RADIATION IN SKIN CANCER*

By Henry C. Herrmann, M. D., Louisville

The purpose of this paper is to briefly describe the essentials in the treatment and the results that can be obtained in various forms of epitheliomas and other malignant conditions by the use of combined radiation. By "combined radiation," I mean the use of x-ray and radium only. Other forms of radiation, such as the ultra-violet, sunlight and infra-red rays being very limited in the treatment of malignant diseases; the violet ray, sunlight and the infra-red ray are of the upper portion of the scale of radiation. These longer rays have a less power of penetration and are of little value in cases of cancer. In x-ray and radium radiation, the rays being a multiple of short rays which have as one of their characteristic properties of penetrating tissues according to their penetrating power or shortness of wave length, the radium ray having the greatest penetrating power. At this time I also wish to express the valuable use, as an adjutant, the electro-coagulation and desiccation. It is, of course, utterly impossible for me to speak of the treatment in detail in regard to these factors, but it is important to mention that the malignant cells of many epitheliomas are exceptionally sensitive to these undulations of various wave lengths.

My paper is confined to a few remarks in regard to the value of x-ray and radium alone. It is a well known fact that for any form of x-ray or radium radiation that will destroy a cell it must be able to reach the cell, and not pass entirely through it, but the energy being retarded by the cell to form a chemico-albumin change that must take place in the cell before any result can be obtained from that particular radiation. Due to the degree of absorption of various tissues, one can easily understand that the long rays will penetrate certain depths of tissue and will be used in the superficial layers of that tissue; while the shorter rays will penetrate and be absorbed; but the extreme short rays will probably pass through and be of no value. Physical signs confirms this view that the softer and longer x-radiation and radium radiation area absorbed, particularly by the superficial skin and subcutaneous layers. In the two cases that I have here tonight I have deducted, to my best of knowledge a combination effect of the superficial, medium and deep radiation. The object of this method is to obtain a hemogenous radiations of decreasing wave lengths that will spend their effects in the cancer tissue. The radiations should be well circumscribed as well as to penetrate the growth and spend their energy in the cells to cause a micro-biosis or a necrosis. Ewing says: "The cure of carcinomas by radiation results from a nice adjustment between injury to the tumor cells, assuring their partial or complete necrosis, and injury to the surrounding tissue, eliciting a reactive inflammation which removes the tumor debris and often destroy viable tumor cells."

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*Read before the Jefferson County Medical Society.

Selected and Unselected Case. Small lesions almost invariably respond much better than large ones. Naturally the same proportion of good results cannot be expected in large and old growths that have penetrated deep into the tissues and most likely involved the cartilage and periosteum, as is obtained in small superficial growths. Cases where the cancer involves the ear and cartilaginous structures are often difficult to heal and the results are sometimes very unsatisfactory.

Malignancy of the skin occurs more frequently in men than in women, but the results are far better in women than in men. The explanation is, I believe, that women are more prone to seek earlier treatment.

Advantages of Radiation. Radiation can easily reach areas where surgery is difficult and dangerous, particularly in lesions about the face. The value of radiation in skillful hands is humane, painless, efficient and the cosmetic results are good.

Uses of the Carbon Dioxide-Snow. Superficial Currettage and Burning with Superficial Caustics and Improper Radiation are Mentioned only to be Condemned. The one necessary requirement for success is experience and this is vitally essential in treating cancer as an eradication cannot be expected if the treatment is not thorough. These two cases are advanced standing and both have been treated with paste and other forms of destructive and irritative substances with very poor results or rather probably stimulating the tumor tissue. Due to the excellent results obtained from radiation, I think it is more or less a fallacy to attempt some other form of treatment for malignant growths of the skin. Occasionally the application of a salve or chemical in very superficial cases terminates in good results, but it is hazardous to use such treatment because one can never obtain a result as desirable as by radiation; and the treatment with caustic and chemicals always necessitates the removal of the growth at the expense of the surrounding tissues, this being extremely dangerous in locations about the face where a large majority of the epitheliomas occur, and at the same time if a failure results, valuable time is lost and the case is more resistant to radiation. In advanced cases of ulcerative epitheliomas it seems to me criminal to use or continue to use salves when the first treatment has failed. In these two cases this incident has occurred and the possibility of a permanent or immedate cure was lessened. I often wonder if a doctor can be justified and have a clear conscience in applying salves and chemicals to such cases as these and expect to accomplish good results.

CASE REPORTS

Case No. 1. Aged 45 years, previous health good. Lesion involving the lower nasal region and nasal fold.

Previous History: Lesion began as small pimple in the nasal labial fold six years ago and was treated from time to time with various chemicals and paste and at no time during the treatment had the lesion entirely healed; but showed evidence of progress. At the present time patient has a large destructive lesion involving the lower left nasal region and having destroyed the left ala nasi. The margins of the lesion are roughened and have a waxy appearance with crust formation, particularly on the lower and outer margins. The lesion has destroyed practically one-half the nose and left an opening of approximately 5 c. m. broad and 4½ c. m. long. It was difficult to say whether the antrum was involved or not.

Patient was given above radiation treatment and after two to three months interval showed marked improvement. At the present time no further treatment is contemplated, the lesion having cleared up nicely leaving the edges very smooth and surrounded by healthy normal tissue. No evidence of over-radiation can be noticed there being no telangiectasis present.

Case No. 2. Patient is 55 years of age. Well nourished. Gives a history of having struck her head against the mantel and the resulting lesion gradually developed. At the time of treatment there was a large indurated roughened area on the left temporal region, this area was 5 c. m. x 8½ c. m. and 1.2 c. m. thick. This patient has had very little previous treatment, only the application of a few home remedies and patent salves. At no time was there a temporarary cure or recession of the growth. This patient also had a small lesion to develop on the outer portion of the right temporal region. This area was also treated at the same time as the larger lesion.

Patient was given combined radiation and after two weeks there was a marked reaction which was expected. This reaction continued for approximately four weeks and then recession or healing took place, leaving an area devoid of color but having a good skin texture, very smooth and having a bleached appearance. No further treatment is contemplated.

Conclusion: Numerous other cases of similar nature have been treated with this method. No medical preparations were used and excellent results were obtained.

DISCUSSION

Curran Pope: I do not rise to discuss the question of the cases reported, but simply to call attention to one thing, namely, that in radiations of all kinds we labor under the disadvantage of being unable to measure our dosage. We know practically little or nothing about the meaning of undulations, waves, angstrom units, etc. on the human body. I have within the last thirty days seen a new device originated by Dr. Herman Goodman by which the angstrom units from 2970 to 3200, which is very narrow portion of the spectrum, are alone filtered. This has never before been accomplished. These rays seem to possess the power of producing fluorescence.

I stated to Dr. Herrmann, before making this statement, that the question of dosage in x and other radiations is largely a question of the individual estimation and nothing more. At the last meeting of the American Electrotherapeutic Association (in September, 1927), and over which I had the honor to preside, it was decided that the only way one could present an idea of dosage for the benefit of another individual who would like to repeat the dosage, was to state what kind of radiation was used, whether it was x-ray, radium, arc light or quartz light, the kind of apparatus, distance and time of exposture. It was decided best not to say ultra-violet rays, because there is a near-ultra and far-ultra violet, both of which must be clearly separated in our minds. To simply say we use the incandescent lamp of the infra-red light will not suffice, because we know that 80 percent of the rays from the incandescent lamp are infra-red. All of these things must be considered.

I think those of us who have worked many years with the roentgen-ray have learned to solve our own problems, just as Dr. Herrmann has in the cases he has reported. But who can tell me why radiations from the Lamp type of transformer seem to have a different effect from those generated by a step-up transformation? Why is it that this same radiation from an ordinary Coolidge tube will not have that effect, but we must have a radiator tube to get the proper effect? I do not know.

I think in the very near future we will have meters for this purpose. In fact I expect to have one shortly for experimental work which is to be furnished by one of the large experimental laboratories. The question then will be—are the meters all right? Until we have these meters and can study them we must bear in mind that it is the personal equation of the operator that oftentimes determines the result in these cases.

Clark of Philadelphia and Wyeth of New York, who have probably done more work along these lines than others in this country, freely admit that they know nothing yet about radiation and have to depend upon personal equation in arriving at the proper dosage. It is to be regretted that we have not some more accurate method of measurement that will take care of these different radiations.

L. Wallace Frank: I want to congratulate Dr. Hermann on his results. In the case of the woman who had the growth on the forehead, it was my understanding that the bone was not involved. In superficial growths radiation—especially with radium—produces beautiful results not only so far as the cure of the lesion but also from the cosmetic standpoint. However, when the periosteum and bone are invaded with the growth radiation alone is not sufficient, and to effect a cure the periosteum and bone must be removed.

At the present time we have under observation a patient who had an epithelioma of the forehead which had invaded the bone. The growth had been treated with "paste" on three occasions and each time recurred. He came to us for radium treatment and in the course of our study x-ray pictures were made which showed that the growth had perforated the frontal sinus. We suggested that by operation and radium we thought he might have a chance. To this he consented, and under gas anesthesia we excised the growth, going well around it, and removed the periosteum and opened widely the frontal sinus. We then cauterized all exposed bone with the electric cautery. A few days later the entire area was treated with radium and the patient sent home. He returned in seven weeks. The exposed bone had died and we easily removed it together with the entire frontal sinus of that side. His wound granulated and is now entirely healed. The cosmetic result is good. There has been no recurrence within the past year and we think the outlook is good.

We do not believe that radium alone could have cured this man, and are of the opinion that surgery is indicated in many such cases. The ideal plan is the combination of surgery and radium and not to depend upon one alone in these more severe cases.

Henry C. Herrmann, (in closing): I thank the gentlemen who have discussed my report. It must be remembered that even in the presence of a large epithelioma of the forehead it is sometimes impossible to determine whether the periosteum is involved or not. I have often removed the superficial incrustations by means of the electro-desicator and then applied combined radiation. In case of doubt, or when there is no improvement after a certain length of time whether the underlying bone and periosteum are involved or not, the patient can be referred to the surgeon for surgery; and in most of these advanced cases, that have come under by observation, the disease has already existed many months or even several years, and the delay of a few weeks while radiation treatment is being applied, makes little differenec in the ultimate result.

In skin cancer I belive the method of combined radiation as described in my report has several advantages over other plans, and should be given a thorough trial before resorting to surgical measures.

WRY-NECK FOLLOWING A BURN: RELIEVED BY SKIN FLAPS; CASE REPORT

By Orville R. Miller, M. D. Louisville.

E. E. White, male, aged four years. Family history negative. Past history negative.

Present history: On February 27th, 1926, while playing with matches, his clothing was ignited and the skin of the left chest, shoulder and neck was severely burned. A mixture of linseed oil and the white of egg was applied. The wound did not heal completely until November, 1926.

The patient was first seen by me on January 11th, 1927, and was admitted to the Childrens' Free Hospital for treatment of the scar contraction on the neck and shoulder.

Physical examination showed a well developed and well nourished boy without physical ailment or deformity other than a torticollis to the left and an inability to elevate the left arm above the head due to scar contractions. The head was inclined to the left and the mouth and eye drawn. The patient had a very limited range of motion in the neck other than flexion.

Daily exposures to the actinic ray of the quartz lamp followed by infra-red ray exposures were instituted with the aim of producing enough hyperemia in the scar to allow stetching to take place. Only slight improvement was noted.

On February 10, 1927, an incision through the skin and fascia was made parallel to the scar on the shoulder and along its distal border. The scar was undermined for a distance of 2 or 3 inches and upper and lower ends of the incision brought together as nearly as possible and the remainder of the wound closed with dermal sutures.

Two days afterward the patient developed chickenpox. Dichloramine-T dressings were applied to the wound daily. After the chickenpox had subsided, actinic ray was begun again, but the wound was not completely healed until April 29th. At this time there was a comparatively free range of motion in the shoulder.

On May 5th, the skin along the lower border of the left jaw and the upper border of the scar was incised, the incision reaching from the angle of the chin to the ear. The scar was dissected from the neck and reflected downward until the head could be brought into correct position. The loose tissue about one and one half inches in width and about four inches in length, was excised. Measurement of the space between the edges of the wound was made and a flap of skin and fascia of equal width and about one inch longer was deflected from the left shoulder and sutured into the open wound with dermal sutures. A collar of gauze moistened with saline solution was used as a dressing and was held in place by a bandage and adhesive.

On May 12th, the anterior half of the flap detached itself by gangrenous sloughing. Balsam Peru and castor oil was used as a local dressing daily. On May 30th, the pedicle was divided, and the remainder of the flap healed in place.

On July 21st, the wound had healed and was clean enough to permit a second flap to be taken from the chest and reflected to the area where the sloughing had taken place. This flap healed in its new location immediately, and on the 5th of August the pedicle was divided. The patient was now able to hold the head in an almost erect position.

On September 2nd, the patient was discharged from the hospital in good condition

DISCUSSIONS.

George A. Hendon: I am very glad indeed to have seen this instructive exposition of what can be accomplished by use of the skin flap in injuries, and I wish to say that this plan is particularly useful in traumatic injuries other than burns. For example, in injuries of the hand, especially gunshot wounds where there has been extensive destruction of tissue, it is surprising how much can be accomplished and the benefits of surgery amplified by the use of skin flaps.

One point in this connection I think is worth remembering, and that is where there is extensive injury of the hand that the little finger can always be utilized to excellent advantage. The little finger can be sacrificed without much loss to the individual. By splitting the little finger either on its dorsal or palmer surface and enucleating the bony structures there is provided a movable flap which can be turned downward to cover an extensive area on the palmer surface of the hand particularly. I have used this plan to excellent advantage in cases where a gun was discharged with the hand over the muzzle, or in close proximity to the muzzle, where the hand was apparently completely ruined and beyond repair. By taking into consideration the fact that such an extensive flap can be provided by utilizing the little finger, the nutrition of which is already established, we can often accomplish some very astonishing results.

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*Read before the Jefferson County Medical Society.

The principle I have outlined should be applied more frequently in connection with injuries of the forearm, where there is extensive destruction and laceration of the tissues, by transposing a flap instead of an effort to bring the tissues into contact without the interposition of new structure, because in that way it is possible to secure a very useful arm. All other injuries can be dealt with in the same manner. Instead of depending upon the development of scar tissue and granulation tissue, by using flaps we can shorten the period of recovery very materially and also amplify the usefulness of the limb.

I have always found it very advantageous to insure nutrition of the transposed flap to elevate the center and leaving both ends attached for four or five days before making the transposition. The flap is lifted, leaving the ends attached; then take a rubber tube and split it into halves to obtain a flat surface; by slipping this divided rubber tube underneath the flap for three to five inches depending upon the amount of structure it is desired to transpose and leaving it there for four or five days. The object of this procedure is to insure adequate nourishment to the skin that has been elevated from the under-lying structure. As a result it will be found that the blood vessels in each end of the flap will have become enormously dilated, that nature will have made an effort to compensate for the loss of nutrition by carrying a very much increased volume of blood through the two ends of the flap. One is often surprised when dividing the flap to find the vessels as large as broom straws and to control hemorrhage ligation is required. By following this plan the nutrition and growth of the flap is insured.

Another point to consider is not to make the flap pedunculated in shape. One must have a broad surface so that nutrition may find its way into the flap, and by observing this suggestion under ordinary circumstances the possibility of the flap sloughing will be avoided. When the flap has been transposed, after being treated as I have indicated, it immediately begins to grow.

There are three principles that govern the growth of skin laps; (1) nutrition, (2) breadth of contact, and (3) lack of tension. A skin flap will grow readily if it has sufficient nutrition and if the transposition be made without tension. Whenever contact is made at the price of tension, it is a bad bargain and the transposed tissue will be lost. The ulitimate result will bear a definite relation or ratio to the amount of nutrition and the extent of the surfaces that are in contact without tension.

The point I particularly desire to impress upon you is the importance of preparing the flap, keeping it elevated in the center, so the vessels will dilate at each end where it remains attached, then when division is made and the flap transposed it will grow.

Frank T. Fort: Dr. Miller has reported a very interesting case. There is no class of surgery which at times presents greater difficulty than the transposition of tissue. Dr. Hendon has given us the correct ideas relative to the preparation of skin flaps, the avoidance of tension after transposition of the tissue, etc. I think it is always best to use as large a pedicle as possible.

I have seen a great many skin flap operations performed and have done them myself. I saw Davis, of Johns Hopkins Hospital, perform a large number of skin flap operations.

Four or five years ago a boy of four years was brought to me because of extensive burns of one leg from the toes to the buttock, the leg and thigh being adherent in extreme flexion. In this case I used many skin grafts composed of prepuces collected by different doctors in their work. I had to operate upon the child four times before a satisfactory result was obtained. The outer border of the foot was flexed and attached to the leg. The toes were so badly burned, flexed and adherent to the planter surface of the foot, that they literally had to be "dug out" and amputated. The child recovered without a stiff leg.

I was called to see another patient who had a deep burn of the upper arm and side of the chest. In this case skin flaps were secured from adjacent surfaces, the pedicles being made as wide as possible, and the result was splendid.

In many instances the skin flap method described by Dr. Miller is very useful provided the pedicle is not too narrow and there is no tension on the flap.

Henry C. Herrmann: As a suggestion I would like to add that the application of radiation in those cases where severe burns have been received often reduces the keloid tissue that has grown within the scar. Radiation can be applied after skin grafting has been accomplished, and in that way reduce the scar tissue and keloid tissue to the minimum and in turn secure fairly good cosmetic results. Roentgen-ray and radium radiation spends its effect particularly on the newly developing collagin fibers.

Orville R. Miller, (in closing) : I am very thankful to the gentlemen for discussing my report. I am glad Dr. Hendon mentioned the importance of elevating the skin flap for a few days before finally dissecting it free. That plan was not followed in the case reported and is probably reason why a portion of the flap sloughed. At the time, however, I thought it was because the flap was too long. There was no tension on it, nor was there any redundancy, the base was broad and when brought into position relaxation was sufficient for easy suture. The flap was perhaps too long and the circulation was not perfectly preserved. When easily seen that the circulation was better, because there was a small artery passing through the flap. These flaps were as broad at the ends as elsewhere.

Dr. Fort mentioned using prepuces for skin grafts. I am glad to know such a procedure is possible. I will bear this in mind the next time I see a patient needing a large skin graft after a burn.

It is not claimed that the result in the case reported is perfect by any means, but there has been a marked improvement. There still remain two or three small areas of scar tissue which may later have to be removed by dissection. I think the result in this case goes to show, as Dr. Hendon has said, that a large surface contact makes the skin flap method much more successful.

Acute Disease of the Pancreas.—Mikklesen reviews seventy-three cases of acute and subacute recurring disease of the pancreas. He asserts that urinary diastase of 150 or more always points to the presence of pancreatic disease. In the last two years determination of the diastase in the urine (Fabricius-Moller) was made in all cases. A positive diastase reaction is considered an excellent diagnostic supplement to the clinical symptoms in all cases and of particular value in difficult diagnosis in the milder acute or subacute cases. He believes tenderness in the epigastric region, in the median line or slightly to the left, is a highly important symptom, almost always present in acute disorders of the pancreas. Rise in temperature does not preclude acute pancreatic disease. He maintains that an acute disease of the pancreas does not of itself indicate operation. Operative treatment is indicated in case of complication (abscess or peritonitis) or of diagnosed underlying cholelithiasis, but not until the pain has subsided. Cases from his material are reported in support of his standpoint.

PERIANAL ULCERATING GRANULOMA*

By Wm.E. Applehaus, M. D., Louisville.

Ulcerating granuloma, also called sclerosing granuloma, granuloma venereum, serpigino ulceration of the genitalia and granuloma inguinale, is a disease that is quite prevalent in British Guiana, Brazil and other tropical countries where it causes serious ravages among the population.

The frequency with which cases have recently been reported in the medical journals have demonostrated its increasing prevalence in this country, with the result that it is receiving much serious study and exhaustive investigation at this time.

Goodman defines it as a skin and mucous membrane disease, usually as an infectious, chronic, indurated, cicatrizing growth on or near the genitals, with no tendency to glandular involvement or serious impairment of the general health.

Low and Newman consider it a true venereal disease, in that it is acquired by sexual connection, but has nothing to do with syphilis or other usual venereal diseases.

McIntosh, in a very exhaustive experimental study, concludes that the Donovan body is the cause of ulcerating granuloma and that it is a bacterium unrelated to the Friedlander group. He also suggests that an actual break in the skin surface is necessary for successful inoculation, or that the organism is infective only for susceptible individuals. The lesions are autoinoculable to contiguous structures, for example, from the side of the scrotum to the leg.

While ulcerating granuloma is decidedly a disease of the genitals and pudenda, yet it is by no means limited to these parts. In 1920 Vulliett reported a case of granuloma of the stomach. McAll in the Chinese Medical Journal, January, 1921, reported a case of subconjunctival granuloma. Beeson in September, 1922, reported a case of granuloma inguinale with a lesion on the lower lip. Stutz and Fontain, in 1923, reported a case of granuloma of the breast, and Thomas in the same year reported a case of lesions in the urinary bladder. Grant, in 1924, reported a case of granuloma of the ethmoid ulcerating into the orbit.

A great many of the cases that have recently been reported, where the lesion was on the genitals, had extensions involving the anus and rectum. Especially was this true in females. The cases where the lesion was primary about the anus are sufficiently rare, however, to justify reporting this case.

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*Read before the Jefferson County Medical Society.

E. L. P., a male, white, aged twenty-five years. Chief complaint: Pain in rectum, discharge from anus. Family history: Negative. Past history: Negative.

Present history: Two months previously patient developed severe pain and swelling on left side of anus. Despite application of heat, etc. this abscess did not rupture until thirty days after its inception when it drained a large quantity of pus from the rectum, yet remained as acutely painful as before and necessitated the continual use of morphine to obtain relief.

Examination at this time showed a rather well developed and well nourished male adult. Physical examination was entirely negative except rectal. Anal muscles and surrounding tissues very fibrous, impossible to dilate more than half normal capacity. Large fibrous deposits on both sides of rectum. Mucous membrane red and granular. Even the slightest manipulation caused severe pain. There was no external evidence of any lesion or sinus. Temperature normal, pulse 80, respirations 20, blood pressure 144-90.

Laboratory analysis: Urine, straw, cloudy, neutral, specific gravity 1.011; albumin, a trace; sugar, acetone and diacetic; acid, negative, no casts. Many pus cells in urine. Phenolsuphothalein test: 1st hour 60%, 2nd hour 20%. Blood count: hemoglobin 90%, erythrocytes 3,930,000, leucocytes 15,600; polymorphsonuclears 71%, lymphocytes 27%, eosinophiles 2%, Wasserman reaction, negative.

Patient was operated upon, an incision being made on either side of anus, antero-posteriorly. There was complete destruction of connective tissue on either side and posterior to rectum. On left side the cavity extended upward to anterior rectal wall. The fibrous deposits were cauterized and wounds packed.

After operation the wounds would not heal. The base and walls of wounds were hard, indurated and covered with unhealthy jelly-like granulations. Despite the negative Wassermann, patient received six intravenous injections of neosalvarsan with no benefit.

Two weeks later the granulations on the walls of the wounds were again cauterized only to recur promptly after sloughing had ceased. This time the lesions were more pronounced and were discharging a thick creamy pus. During entire time patient had a normal temperature, pulse and respirations.

About thirty days post-operative the inguinal glands began to become sensitive and swell and later ruptured. Smears from the glands showed no tubercle bacilli or blastomycosis. The following day the second gland was aspirated and Donovan bodies found.

Patient was given 3-4 gr. tartar emetic intravenously at intervals of every other day. The wounds were dressed with 10% mercurochrome and after the fourth dose of tartar emetic the granulations began to disappear, discharge ceased and wounds began to heal. Both rectal and inguinal lesions healed entirely, induration about rectum disappeared and anal muscles regained their normal resilience. Patient received in all 15 doses, 3-4 gr. each, of tartar emetic intravenously, and has been well for the last six months.

The interesting feature of this case was that the original infection began as an abscess in the perirectal space, which when incised involved the entire wound and anal canal. The inguinal glands in this case were secondary to the rectal pathology. The smears from the aspirated glands showed only Donovan bodies.

Tartar emetic was absolutely specific in this case, but no marked improvement was shown until after four doses were administered. This may indicate that a certain saturation with the drug is necessary before it begins to effect the bacterium.

DISCUSSION

James R. Stites: The case described by Dr. Applehaus is very interesting and I am sure we have all enjoyed his report. I believe the case should be included in the classification of granuloma inguinale, although the lesion seems to have started in the perirectal tissues.

During the last four years I have seen eight or ten cases of granuloma inguinale, the majority of them in the city hospital dispensary, and unquestionably the incidence of such cases is increasing in this country. I have seen only one case in private practice.

There are several points of peculiar interest in the case reported by Dr. Applehaus: First, the patient was a white man. The majority of these cases occur in negroes. Second, the diagnosis was completed, i. e., the Donovan bodies found, by aspirating one of the involved inguinal glands. As a rule there is no glandular involvement in granuloma inguinale. Third, the disease began in the perirectal space. In all the cases I have seen the primary lesion involved the genitalia.

The results in the case treated by intravenous injections of tartar emetic have been quite satisfactory. However, where the involvement is extensive with the production of a large amount of cicatricial tissue, there seems to be a tendency to disintegration of the tissues, although the Donovan bodies may no longer be present.

Some time ago we had under observation a young man with granuloma inguinale, and gave him a total of fourteen intravenous injections of tartar emetic. Just as Dr. Applehaus has stated, there was no improvement in his condition until the eighth injection was given. The lesion then healed almost like a chancre heals after the administration of a dose or two of neoarsphenamine. During the treatment the patient had considerable systemic reaction,—nausea, vomiting, slight fever. I would like to ask whether there was any systemic reaction in the case Dr. Applehaus has reported.

The outcome in the case I have just mentioned was most satisfactory. The lesion healed promptly after the eighth dose of tartar emetic, there has been no evidence of recurrence, and the patient is now in better general condition than he has been for some time.

Cecil D. Gaston, Birmingham, Ala.: It has not been my good fortune to see many patients with granuloma inguinale, because they usually seek the genito-urinary specialists. However, I have seen several of them, particularly among negroes, in the Birmingham County Hospital.

I have been impressed with the relatively large number of cases of granuloma inguinale reported in the literature during the last few years. Whether this is because the disease is actually increasing in this country, or whether improvements in modern laboratory technique have permitted us to make diagnosis in a greater number of cases, I do not know. My personal belief is that the increase is due to the fact that formerly many of these cases were diagnosed as tuberculous lesions, epitheliomata, or phagedenic chancroids.

It may be interesting to note that the majority of the cases of granuloma inguinale seen in my own practice, and in the practice of my colleagues in Birmingham, have existed over long periods of time; in fact, chronicity has been a predominating characteristic, and the patients in the interim were treated by various methods of medicatio . In my experience some of the cases did not respond so promptly to intravenous injections of tartar emetic as the one Dr. Applehaus has described; a few of them were quite resistent to treatment. Reaction from mixed infection may have had something to do with the unusual recovery in the case related by Dr. Applehaus.

We have a man in Birmingham—and perhaps you have read some of his writings,—Dr. Burr Ferguson, who is doing some excellent work on the various types of infection. He has had a large series of cases in the Birmingham County Hospital, and has probably treated more patients for granuloma inguinale than anyone else in the city. When he fails to secure favorable results from tartar emetic, he administers mercurochrome intravenously in doses of 15 to 20 c. c of one per cent solution. He has reported good results from this method, and claims that recovery is dependant upon leucocytosis, basing this claim upon the theory of Metchnikoff.

I have greatly enjoyed the paper presented by Dr. Applehaus. It is especially interesting at this time, when there appears to be a large increase in the number of cases such as he described, many of which remain undiagnosed, and a paper of this kind tends to make us more alert.

Frank T. Fort: Cases of serpigenous pudendal ulcer, or as they are now called "granuloma inguinale," are not very common. I recall having seen only two such cases in my entire experience.

About three years after I graduated in medicine, a nice looking young white man came to me with an extensive granulating pudendal ulceration which was diagnosed as syphilitic. He was given protiodide of mercury and iodide of potassium internally, and compresses saturated with iodoformized oil were used locally. The lesions persisted about four months before healing occurred. I afterward saw another similar case, also in a white man. The same method of treatment was employed, and the patient recovered within a few weeks.

I have always believed these granlating and ulcerative pudendal lesions were "off shoots" or sequelae of syphilis. Perhaps there exists in these individuals what was formerly called a "syphilitic diathesis." While there are no longer any clinical manifestations of syphilis, some condition is produced favoring or facilitating the formation of Donovan bodies. In my opinion the ulcerative process owes its origin to syphilis.

Arthur T. McCormack: The fact that a large number of cases of granuloma inguinale are being reported in the literature indicates that there has been a considerable increase in incidence of the disease during recent years. Many cases occurred among negro soldiers in the late war. I recall hearing a distinguished authority, who was doing an enormous amount of work in venereal disease at that time, remark that graduloma inguinale was much more frequent than formerly, and it was his belief that it was purely a venereal disease. He reported a large series of cases in the majority of which the lesions were primarily about the genitals, but in two or three the ulceration began in the perirectal tissues as stated by Dr. Applehaus.

Stephen C. McCoy: There seems no question that there has been a considerable increase in the incidence of granuloma inguinale throughout the United States, if one may judge from the number of cases reported in the literature. This applies to both the north and south.

Randall in 1921 (Journal of Urology, June, 1921) reported fiften or twenty cases and expressed the opinion that the disease had been endemic in Philadelphia for thirty or forty years. Howard Fox in 1926 (Journal of the A. M. A., November 27th, 1926) mentions 150 cases occurring in the United States. He tabulates 88 cases and gives their geographic distribution. All these were reported in the northern and western states. He gives Kentucky credit for only two cases.

During the last three years I have seen about a dozen cases of granulma inguinale. Those observed at the city hospital have been reported before this society. In private practice I have seen three cases, all in white men. Many authorities claim that an important diagnostic point is the absence of glandular enlargement. That is contrary to my experience in private practice. Two of the three patients just mentioned came under observation with marked glandular involvement; they had "broken down" inguinal glands which required incision and drainage. Their chief complaint was painful inguinal adenitis. I believe glandular involvement occurs more frequently in the white race than among negroes.

Considering the fact that granuloma inguinale is so frequent in the negro race, as compared with epithelioma which is very rare in negroes, the differential diagnosis between these two affections presents little difficulty. In doubtful cases of course demonstration of the Donovan bodies clarifies the diagnosis. In cases of long duration the granulomatous lesions may show other associated organisms, but as a rule a valuable diagnostic point is that there are no other organism accompanying Donovan bodies.

In all cases I have seen, the lesions appeared about the genitalia primarily and then extended to the inguinal and adjacent regions secondarily.

The cases observed in private practice responded very satisfactorily to the intravenous administration of tartar emetic.

Wm. E. Applehause, (in closing): I thank the gentlemen for their liberal discussion. In the treatment of the case reported, the patient had absolutely no reaction so long as the dose of tartar emetic was maintained at ¾ grain. However, he did not begin to respond to medication until four doses of the drug had been administered, thereafter improvement was almost like magic.

On two or three occasions the dose of tartar emetic was increased to one grain. In each instance this was followed by a severe chill with nausea and vomiting which persisted for three or four hours. The dose was then maintained at ¾ grain and the patient had no further trouble.

Some authors report having given tartar emetic in two grain doses without producing any reaction, but in the present case for some unknown reason the limit of the patient's tolerance for the drug was ¾ grain.

UTERUS DUPLEX, BICORNIS, CUM VAGINA SEPTA, CAESAREAN SECTION.*

By Thos. K. Vanzandt, M. D., Louisville.

Malformations of the uterus and vagina are due to lack of fusion of the lower half of the opposed Mullerian ducts in the embryo. The union takes place from below upward and all degrees of lack of fusion have been noticed. The two sides of the uterus and vagina are not always equally developed and we observe gradations from completeness of the two halves to almost entire absence of one Mullerian duct.

The malformation found in the patient, the history of whose case I am presenting, is very rare. Usually one horn is rudumentary and the vaginas are unequal. Apparently in this case both uteri and vaginas were equally developed. Coitus was not interfered with. In these anomalies menstruation may come from both uteri and pregnancy may occur in one or both horns, twins having been found in one horn and also one fetus in each horn. Pregnancy is ordinarily undisturbed, but abortion may be the rule. Menstruation may occur from the empty horn while pregnancy proceeds in the other.

Delee reported the case of a woman eight months pregnant with a child in each horn.

Dannreuther (Am. Jour. Obs. & Gyne., Sept. 1927) reports the case of a woman 44 years old, who had five full-term children and four abortions. When abdomen was opened, a double uterus was found, each uterine body containing a normal cavity which communicated with a single cervical canal. The left uterus contained a fibroid tumor.

I have been unable to find in the literature a case similar to the one I am presenting. I saw this woman in consultation with Dr. Allen Kirk.

History: Mrs. S. F., married, aged 22 years, admitted to St. Anthony Hospital May 5, 1927.

Diagnosis of full-term pregnancy had been made by her physician.

Family History: Negative for malformations; belongs to a large family.

Past Personal History: Children's diseases only. No serious illness: normal childhood. Menstruation began at 12, and was normal in time, duration, and amount from the date of onset, except for more or less dysmenorrhea. Married at age 16 and very soon thereafter became pregnant. History of this pregnancy was not obtainable. When at full term she was rushed to Jewish Hospital in acute eclampsia. Dr. Allen Kirk did a Caesarean section, baby dead, mother made a complete recovery. This was in 1922. From that time until the present pregnancy menstruation has been regular and normal, no abortions.

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*Read before the Jefferson County Medical Society.

Present History: Last menstruation Aug. 5, 1926. Nausea and vomiting during first 6 weeks, quickening about Dec. 20, 1926. No untoward symptoms during pregnancy.

Examination: Height 65 inches, weight 165 pounds, blood pressure 170-120, urine, specific gravity 1030, acid, albumin one plus, no sugar, few epithelial and pus cells, no casts. Blood: hemoglobin 90, erythrocytes 4,360,000, leucocytes 10,300. Differential count, negative. Marked edema of both ankles. General physical normal. Pelvic measurements: intersp. 26 cm., intercr. 29 cm., bit. 31 cm., ext. conj. 20 cm. Vaginal examination: vulva normal, vagina divided into two almost equal parts by a median septum, beginning just inside labia minora; rather thick and extending upward to its attachment to the uterus. There were two openings into the two separate vaginal canals, a cervix pointing into each.

Believing that the vaginal septum offered an obstruction to normal delivery, an elective Caesarean was done May 7, 1927. Labor had not begun.

On opening the abdomen the antero-superior aspect of two uterine bodies presented. The right was very large and contained the fetus. The left was about the size of a baseball, and on its anterior surface a two-inch scar from the Caesarean five years previously was found. A deep furrow could be seen between the two uterine bodies at the fundus. A normal tube and ovary was noticed on each side.

A female living child, weighing 8½ pounds was removed from the right uterine body. The child five years ago had been taken from the left. Mother and child dismissed from hospital May 19, 1927, in good condition.

DISCUSSION

J. Allen Kirk: Cases of complete double uterus and vagina must be exceedingly rare. As stated by Dr. Van Zandt, I performed Cesarean section upon the patient whose case he reported in 1922 removing a child from the left uterine cavity. On May 7, 1927, a second child was removed from the right uterus as detailed by Dr. Van Zandt.

In 1922 the patient was admitted to the Jewish Hospital with eclampsia; there had already been twelve convulsions. At that time I delivered by Cesarean section from the left uterus a child which had evidently been dead for some time as it was macerated. The woman made a complete recovery. She was cautioned at the time about the danger af again becoming pregnant, as in that event another Cesarean operation would be required, but as we know "accidents often happen."

Nothing more was heard from the patient until about the first of March of this year, when her physician came to the office and informed me that she was seven months advanced in pregnancy. She was sent to the hospital at that time, and was allowed to advance about five days over full term. An elective Cesarean section was then performed with a living child. I mentioned to the patient and her husband that it might be advisable to perform a Porro operation to avoid future pregenancies, but for reasons which they deemed sufficient the procedure was declined.

Harry A. Davidson: Dr. Van Zandt has presented a most interesting case and I hope the details will be published for addition to the literature of the subject,

Dr. Kirk said he recognized the abnormality at the first operation in 1922. Under the circumstances I do not suppose there was any debate about the necessity of Cesarean section when the woman became pregnant the second time. However, such a question might arise, as the dictum "once a Cesarean always a Cesarean" is a debatable feature; but in this case as the obstruction was chiefly in the vagina there was probably no debate concerning the necessity of the second Cesarean section.

I congratulate both the physicians and the patient on the successful outcome of the case, and hope it will be published as it will be an important addition to the literature.

W. O. Johnson: Within the last eight months there have been 1,156 new cases in the gynecological department of the city hospital. Among these there were seven congenital abnormalities similar to the case reported by Dr. Van Zandt. Two of the patients had bicornate uteri with two openings in the vagina and complete vaginal septa. Two had bicornate uteri with only one opening in the vagina and partial vaginal septa. Two apparently had single uteri with complete vagninal septa and gave a history of having painful coitus. One patient apparently had a single uterus with only a partial vaginal septum without painful coitus. I think these points are interesting in connection with Dr. Van Zandt's report to show the relative frequency of these conditions in the gynecological dispensary of the city hospital.

Thos. K. Van Zandt, (in closing): In the case reported the pelvic diameters were absolutely normal. However, Cesarean section was necessary because of obstruction due to the vaginal septum on the first occasion (1922), and as this was well understood there was no debate about the necesssity of the operation for delivery of the second child.

A most unusual feature was that this woman had two cervices opening into two separate and distinct vaginal canals. Bicornate uteri with one cervix are not so uncommon. In the case reported by Dannreuther there was a double uterus with one cervix only. The left uterus contained a fibroid tumor.

In the present case the woman stated that no difficulty was experienced in coitus and she did not realize that she was different from any other woman.

TULAREMIA, CASE REPORT.*

By E. T. Riley, Flemingsburg, Helath Director, Menifee County.

Kelly Long, 36 years old, of Morgan County, while hunting on November 14th, killed and dressed 25 rabbits, and on November 16th he was taken sick with headache, pain in stomach, bowels, and limbs, also nausea, but no vomiting. He also suffered all night with his right hand and the next day saw his physician for said trouble and after being questioned and examined thoroughly, his case was diagnosed as probable typhoid fever and he was put under treatment for same and after a week's treatment he felt no better and changed physicians and after being examined again thoroughly, he opened inflamed lymphatic glands on his right hand and was placed on a medicinal treatment. He seemed to improve and within five or six days was able to be up and stir around the house but only remained up for a few days before he had the same symptoms to return with rise of temperature to 101° in afternoons, followed with profuse sweats, enough to get his bedding wet at nights, with loss of appetite and began to lose weight. Where glands were opened, they closed and filled again with pus, and had to be lanced again and were sixteen days in healing. Patient was kept on same treatment and after several days he began to improve again and was able to be up again, but for only three days when he had another relapse, and his father brought him to his home; near Frenchburg, and called Dr. Ester Mitchell to see him and placed him under her care. This was December 23, and after examining him very close she found him with the following symptoms: temperature 101° F, normal respirations, pain in ankles and knees, with stiffness and swelling of same, slight elevated purplish eruption of both hands and on back of neck, extending as far down as the second dorsal, tongue clean, kidneys sluggish, with constipation from onset of disease, enlargement of the lymphatics of right axilla on right arm, one under the triceps muscle as large as a large hickory nut, also enlargement of lymphatics under deltoid muscle, not quite so large, but no discoloration of enlarged glands.

Dr. Mitchell opened the glands in the axilla and under the deltoid muscle three times, four days apart (with no pain to patient) and found a bloody sanguine pus with no odor.

I saw the case with her on January 3, 1928, and after careful examination, readily agreed with her in her diagnosis of case, and on this visit she opened glands under triceps muscle and found same kind of pus as in other glands.

Dr. Mitchell, on her first visit, placed patient on medical treatment; first giving him 1 cc. hypodermically of manganese of butyrate, and in four days giving him 1½ cc. of manganese of butyrate and a solution of iron by mouth, and salts daily to keep his bowels open. For pain and swelling of ankles and limbs, had family to use hot towels saturated in solution of magnesium sulphate, this applied every evening for a week before swelling and pain subsided. Also placed patient on a general diet.

On January 3rd she sent some blood to state laboratory and in several days had a report on same, confirming her diagnosis of tularemia.

From the time patient was taken sick, up to January 5th, he had lost over thirty pounds in weight and very much emaciated, resembling a patient that had had typhoid fever.

For about a week under the salts treatment for constipation, bowels became very thin, with a foul odor, but no blood in stools at any time.

On January 16, I saw patient again with Dr. Mitchell and she again opened glands under triceps, also found glands under right axilla still draining, and on this day patient left for his home in Morgan County. He looked a great deal better and stronger, and said that he had gained over a third of his lost weight back, and spots on his hands and arms were about cleared up. With proper treatment and care of himself, we see no reason why he shouldn't recover entirely from this disease.

Lymph Nodes as Blood Filters.—Friedheim asserts that lymph nodes and organs are secondary blood filters. The liver, spleen and bone marrow are primary filters. The subcutaneous connective tissue may, in certain states of irritation, become a primary filter.

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*Read before the Menifee County Medical Society.

THORACIC DUCT RUPTURE. REPORT OF CASE RELIEVED BY OPERATION.*

By E. Dargan Smith, Louisville.

A case of rupture of the thoracic duct is reported: (1) on account of the rarity of the condition, (2) the scant recognition in standard texts of the likelihood of such an injury, during the performances of various operations on the neck, or of the possible consequences, and (3) to record a method by which a persistent fistula of the thoracic duct was closed.

Case Report.

Chin Wong Ling, aged 53, was referred to the surgical service of the Leung Kwong Baptist Hospital, Canton, China, August 25, 1926. He complained of an enormous cystic swelling distending the entire left side of his neck, and of a continued decline in weight and strength .

The patient gave the history of an operation on July 15, 1926, for the removal of diseased left cervical glands. The surgeon who performed the operation reported that the gland mass was densely adherent, and extended downward along the internal jugular vein internal to the scalenus anticus muscle. Clinically the glands appeared to be sarcomatous but, due to the confiscation by the Nationalistic Government of the Hospital in which the operation was done, the tissue was never examined by the pathologist. The ultimate outcome of the case rather indicated that the mass was not malignant. The escape of chyle into the wound, during the dissection, showed that the thoracic duct had been opened. Having observed that lymphaticostomy fistulas, which he had made on several occasions in cases of peritonitis, usually closed promptly, the surgeon looked on the injury as a comparatively trivial one and closed the incision without attempting to suture or ligate the duct. Following the operation, external pressure was applied over cotton and gauze pads with the expectation the procedure would result in closure of the duct and establishment of collateral passages to the venous system. The skin wound healed by primary intention, but accumulating fluid lifted the superficial tissues over the entire dissected area. When this cystic swelling became tense it was aspiriated, and again covered with pressure dressings. The swelling recurred and persisted after the patient left the hospital. Subsequently the miserable fellow sought relief from several physicians, some of whom withdrew the fluid with needles, while two others made incisions; which incisions, strange to say, healed. The patient stated only two or three hours were required for sufficient chyle to reaccumulate to produce an annoying tension. Although the patient reported having lost forty pounds,—weighing one hundred and sixty pounds before the injury,—inanition appeared to be quite moderate. Some of the chyle must have reached the veins.

The scars, following the two incisions to evacuate the fluid, were quite thin and rupture seemed imminent with exposure of the patient to the probability of a serious infection. Due to this danger, to the failure of external compression, and to the continued decline of the patient's strength and morale, we felt justified in attemping an operative closure of the duct.

The patient was carried to the operating room on September 1, 1926, and an 8 cm. incision made over the lower carotid triangle. This incision was somewhat angular, to permit excision of the thin scars. The entire lining of the pouch was seen to be covered with a gray, chylous coagulum, and the round opening of the thoracic duct was located without difficulty. There was a free somewhat jet-like discharge of lymph from the duct which necessitated constant sponging to retain a clear field. Induration of the tissues made ligation of the duct hardly practicable, and had it been possible such sudden occlusion might have led to serious "damming back" of fluid with perhaps even rupture of the receptaculum chyli and a fatal termination. Available structures were scarified with the edge of a scalpel, for two or three centimeters about the duct opening, and approximated in three layers by a continuous suture of chromic catgut size 0, the first suture being passed directly across the open end of the duct. The muscles, blood vessel sheath, and other tissues were sutured without detailed dissection or identification. The sutures produced quite an effective temporary check of the lymph seepage. Ten cm. outward, at the upper edge of the clavicle, a small puncture wound was made and a narrow strip of gutta percha stitched in place to provide a tunnel for leakage. Immediate cessation of the flow from the dust was not expected nor was it desired, since a favorable outcome seemed most likely through a gradual occlusion due to fibrous organization of the granulations excited by the suture material, with the establishment of collateral circuits as the resistance increased.

The patient was placed on a restricted diet, consisting chiefly of milk and eggs, was given a rectal drip of glucose, and encouraged to hope for the best. As anticipated there was

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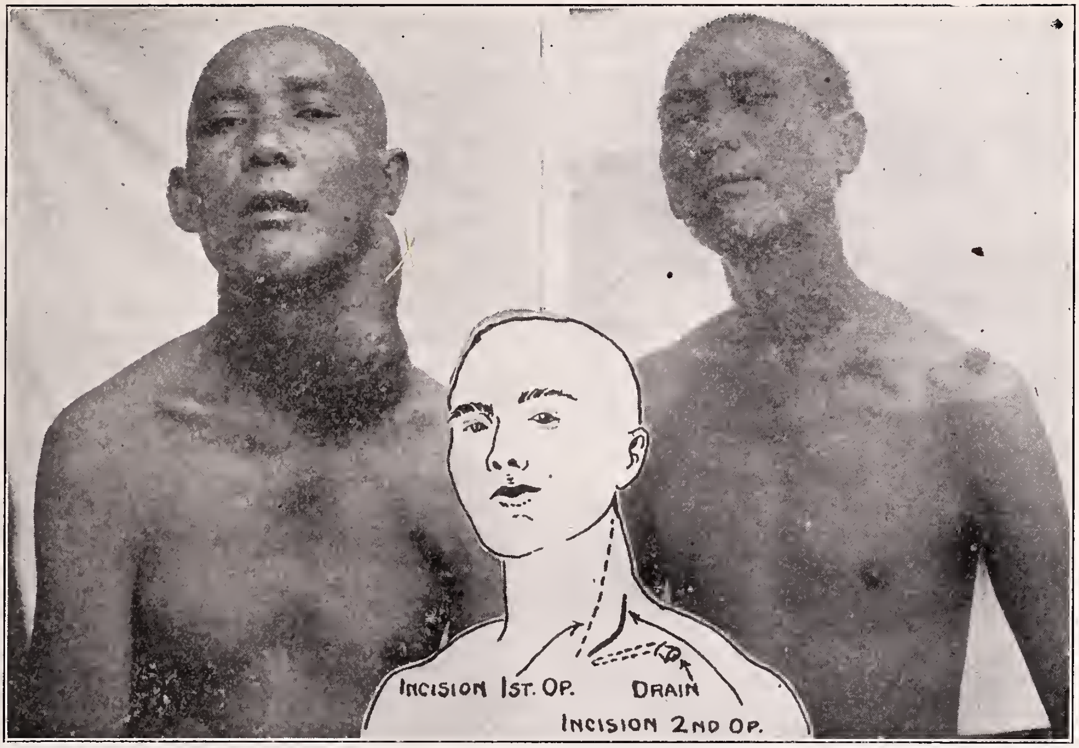
*Read before the Jefferson County Medical Society.



Preoperative photograph on left; September 1, 1926. Right: appearance of Patient September 26, 1926. Inset shows position of incisions.

considerable drainage. The amount of fluid which escaped was enormous, the patient being literally deluged with chyle. His clothes and bedding were drenched, and pounds of cotton were used to reinforce the dressings and to absorb the fluid. His thirst was insatiable.

The flow was distinctly lessened at the end of the second post-operative week, and the fistula was completely healed on the twenty-fifth day. The patient was dismissed from the hospital on September 28, 1926, as cured. At that time he was beginning to regain his weight.

Discussion.

Since the discovery of the lymphatic system by Asellius, in 1627, a number of workers have experimented with the lymphatic vessels to determine the influence of their contained fluids on the general animal economy. Since much of this investigation was based on studies of phenomena following deliberate wounds of the thoracic duct, some of the findings are of interest in the consideration of this case.

In 1691, Flandrin, following experimental introduction of cannulæ into the thoracic duct, concluded that the lymph may reach the blood stream through channels other than the thoracic duct. Some of these collaterals have been demonstrated by Ferdinand C. Lee, who, working with cats, ligated the intrathoracic portion of the duct and showed that the flow may be diverted to the right thoracic duct, or at times directly into the azygos vein. And, according to Lower and Tiechman, the duct frequently opens into the junction of the jugular and subclavian veins in a delta-like manner, or it may subdivide into two or three terminal branches which empty into different veins.

We do not know which collaterals assumed the function of the thoracic duct in the reported case, and perhaps the only method of determining this point would be to inject the patient's lymphatics after death. It is sufficient to know that there are several known channels by which the chyle may reach the blood after severance or obstruction of the thoracic duct.

When collateral vessels are adequate to assume immediately the function of the injured duct chylous fistulas are relatively innocent, for there is a tendency toward spontaneous recovery. The normally low pressure within the duct is also a contributing factor in closure. Such a favorable outcome is not constant, for Sir Astley Paston Cooper observed a fatal termination in one of his three cases of thoracic duct rupture. Later Cooper demonstrated that when the thoracic ducts of dogs were divided, and chyle permitted to drain into the tissues, the animals died between the fourth and tenth days, and dissections revealed a pouch of lymph in the wound in all cases.

The case reported is more analagous to Cooper's dogs than to animals whose ducts have been ligated. This distinction is important, for some investigators have attempted to discount Cooper's conclusions, basing their deductions on phenomena following duct ligation, ignoring the fact that severance of the duct is apparently more frequently lethal than ligation. Progressive obstruction cured this patient, while it is probable that had he remained in the condition of Cooper's animals he would have died from inanition or intercurrent infection.

Another lesson taught by this case is that in removing tumors from the lower portion of the anterior cervical triangle one should have adequate exposure, for to dissect blindly downward into a deep pocket is to invite serious injury to important structures. One is particularly likely to injure the thoracic duct in removing a gland mass internal to the scalenus anticus, between the internal jugular and the vertebral veins. Here it is essential that the edge of the knife be kept directed toward the mass, and, when possible, blunt dissection is preferable in this locality; careful watch being maintained for the thoracic duct.

Minken says that certain prominent surgeons have injured the duct during sympathectomy.

Some of the numerous lymphaticostomies, which were so freely indulged in a few years ago in the treatment of peritonitis, and intestinal obstruction, may have been followed by unreported deaths in which persistent fistulas were contributing factors. However, deliberate fistulas of the duct will doubtless be of rarer occurrence since McGuire has shown that lymphaticostomy is not justified in cases of peritonitis, and Lehman and Copher demonstrated that drainage of the thoracic duct does not exert a favorable influence on general peritonitis.

We are justified in concluding that a wound of the thoracic duct should not be permitted to drain into the tissues of the neck with the expectation that spontaneous closure will occur. The ideal treatment is to suture when the wound is in the long axis of the duct, and to implant the end of a severed duct into a vein.

Mr. Edward Harrison, after reporting a case in which he sewed the duct into the stump of the external jugular vein,—the injury to the duct being recognized while he was performing a glandular dissection,—concludes his paper with the following recommendations:

"(1) Suture the wound in the duct, if practicable.

"(2) Search carefully for a second terminal branch, and if this is found apply a ligature.

"(3) If the duct is single, endeavor by all means to effect an implantation into a vein.

"(4) Ligate the duct, and trust that collateral circulation may be established.

"(5) Plug the wound with gauze."

Mr. W. W. Stuart suggests that firm external pressure may be tried, if the injury is not recognized until after suture of the incision,—the chylous accumulation being left in place.

Stuart's method failed in the reported case. I would recommend, if the injury is recognized within a few days, that the original incision be reopened and the most suitable suggestion of Harrison followed. Later, in the presence of induration, and other tissue changes, the expedient we employed may serve.

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Preoperative and Postoperative Iodine Treatment of Exophthalmic Goiter.—On the basis of eighteen observed cases the authors conclude that an artificial remission can be produced through administration of iodine before and after operation. This is manifested by disappearance of the nervous symptoms, such as palpitations, restlessness, sweats, tremor and diarrhea. Simultaneously there is a lowering of basal metabolism at a rate of 3 per cent per day. The operation is well tolerated after six or seven days of medication with compound solution of iodine. Histologic studies demonstrate the effect of iodine on the morphologic structure of the gland. Instead of proliferating hyperplastic forms, quiescent parenchymatous or colloid goiters are encountered. Atrophy and degenerative changes in the epithelium were observed more rarely. Lymphocytic infiltrations were noted. A direct relationship between the degree of the morphologic changes and the clinical picture was not observed.

OBSERVATIONS ON THE VENEREAL PROBLEM.*

By Edward R. Palmer, A. B., M. D.,
Louisville.

I know of no better way of introducing a discussion of the venereal problem than by a quotation from that immortal poem by Alexander Pope—"Essay on Man."

"Vice is a monster of so frightful mien
As to be hated needs but to be seen;
But seen too oft, familiar with her face
We first endure, then pity, then embrace."

That is the state of affairs to which the city of Louisville is fast approaching with reference to promiscuous sexual intercourse and the consequent wide spreading of venereal diseases. That these diseases are increasing rapidly it is hardly necessary for me to state before such an assemblage as this. The people at large, however, are child-like in their belief in the efficacy of restrictive measures, so that with the abolition of the "red light district" it is the common opinion that venereal diseases have practically been "wiped out of existence."

Just recently while walking along the principal streets of Louisville, I met a prominent attorney whom I had not seen for several years, and who is interested in venereal problems. His first remark was: "You are just the man I want to see. I would like to know, and I come to you as headquarters, to what extent the modern movement for abolishing the red light district has decreased venereal affections?" His question provoked a smile. I said, "decrease them, why, my dear man, do you not know that venereal diseases have increased in leaps and bounds since abolishment of the segregated district?"

Now, in order for us to understand and appreciate just what this problem is, it will be necessary for us to study, in regard to venereal diseases: (a) the characteristics in which they differ from other contagious and infectious diseases; (b) the measures that have been employed to control and prevent their dissemination; (c) the reasons for the failure of these measures; and finally (d) the solution of the problem.

There are four venereal diseases, two of which may be omitted from detailed consideration, as they offer but little interest of problematic nature. These are: gangrenous and erosive balanoposthitis and chancroid. The diseases which are regarded as offering problems are: (1) syphilis, and (2) gonorrhea. These diseases have considerable in common, in their characteristics and their indifferences from the other transmissible disorders.

In the first place, the act by means of which they are generally contracted can be looked upon, in the vast majority of instances, as purely voluntary. The person who contracts these diseases has to go out after them. They cannot be looked upon as accidental in the way that we consider typhoid fever, measles or variola accidental infections. The latter we may meet anywhere, in the tramways, theatres, and hundreds of other places; but to contract venereal diseases implies voluntary subjection of the individual to the danger by the closest or most intimate personal contact with the source of infection.

Another difference between the venereal diseases and other infectious maladies is that the act by which people subject themselves to the former is frowned upon by the community. It is looked upon as morally wrong, and it is, indeed, a legal wrong, so that the person who contracts one of them from the very start feels that he has done something that must be concealed. There is also a feeling of shame connected with venereal diseases which makes the person who has contracted them have a tendency to hide the fact from those he would not care to have know he is suffering from such a condition.

There are other points of peculiarity: All the other infectious and contagious diseases are characterized by being what we would call practically self-limited; they pursue a more or less definite and brief course—from three to six weeks—and terminate either in complete resolution or in death. On the contrary, when we come to consider venereal diseases, we find they possess no such characteristics. They pursue a rather rapid, fairly short, acute course, but instead of terminating in resolution or death, they have a tendency to terminate in chronicity; to become more or less latent, showing but little or no external manifestations, still being highly contagious, and lasting instead of a few weeks, many months, and in some instances years.

The great dangers of these diseases to others are not in the acute stages, for when one first sees a man with syphilis or gonorrhea he is suffering, worried, scared and sick, and is not very likely to be perambulating around infecting people. Therefore, he is really not a very great source of danger at that time.

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*Read before the Jefferson County Medical Society.

**Extracts from an address delivered before the Louisville Urological Society, April 13, 1926. The original address was published in full in the Urologic and Cutaneous Review, Vol. xxx, No. 9, 1926, to which credit is hereby extended for the privilege of reproducing portions of the material.

It is my firm belief that whereas the modern method of treatment of syphilis, with the customary periods of rest, etc., may render the individual non-infectious temporarily, yet if treatment is discontinued he quickly returns to an infectious conditions, and is probably much longer capable of transmitting the disease than if he had received no treatment or had been treated by the older methods. It has been argued that the modern method of treatment causes rapid subsidence of symptoms, and that this is a decided advantage in the treatment of syphilis. My belief is, on the contrary, that it is a great disadvantage, because the individual, and particularly is this true in the lower class of people who are at best difficult to control, ordinarily considers himself well when the symptoms disappear, and for that reason not only discontinues treatment prematurely, but resumes his sexual activities while the disease is still transmissible.

Those of you who have worked with syphilis for many years can readily recognize the fact and will probably agree with me when I say that syphilis has decidedly changed in its type and character. We do not see syphilis like we saw it twenty or thirty years ago. It then was characterized by being a disease involving the skin, the mucous membranes, and the osseous system. The text books on syphilis were then mostly along dermatological lines. We saw commonly the various skin manifestations or syphilides, condylomata around the external mucous orifices, etc.; we also observed involvement of the osseous system, gummata of the bony framework, of the soft and hard palate, of the septum nasi, and many other structures. The syphilis of today is of an entirely different type. We see very few skin manifestations, and rarely are the mutilating gummatous lesions encountered. Syphilis of the present is a disease of the internal viscera, the cardiovascular and the central nervous systems.

I am not alone in the belief that these changes are due to the modern methods of treatment. So great an authority as Finger, of Vienna, has made similar statements. He asserts positively that it is his belief the change in the character of syphilis is due to the modern methods of treatment. It has not only changed its character in that way, but by this method of treatment it has, in my opinion, been made a much more serious disease, it has been made so that it is much longer transmissible, and I think we will see in years to come that there will be much more congenital syphilis resulting from the modern treatment.

Gonorrhea we find has also changed in type. Twenty-five or thirty years ago it was a relatively mild disease. It is true that we not infrequently saw serious and complicated cases, but I do not believe there were as many, or as much involvement of the deeper structures, as today. By many observers this is claimed to be due to the modern mode of treatment, especially irrigations. I do not believe that. Many of the patients who come to me have never had any kind of modern treatment, and they are just as badly or even worse affected than those who have been subjected to the irrigation plan of treatment.

What is the explanation? Has there been a change in type of the gonococcus? We must remember that the gonococcus is a vegetable organism and subject to the same laws of growth as other vegetable and plant life, like a grain of corn, wheat, or grass. In the olden days gonorrhea was contracted in the majority of cases in houses of prostitution from inmates who had suffered from the disease in a chronic form for a variable period of time. The result of this long infection has the same effect on the gonococcus as other plant life; that is, growing in the same soil for a long period it gradually loses its virulence, so that when transmitted from the old soil of the prostitute to the fairly young and fresh soil of the male it assumes slightly more active characters. Then when transmitted from the fresh soil of the male, not again into the old soil of the prostitute, but into the virgin soil of other females, as so frequently happens in these days of sexual promiscuity, naturally the organism redoubles its virulency and becomes more and more destructive.

There has been a change in type of the prostitute the last few years. The old-time prostitute has passed out of existence. The prostitutes of today, instead of being, as in the old days, from eighteen to thirty-five years of age, are from fourteen to eighteen. The majority of the so-called ''women of the streets'' today are fresher and younger than in the olden times. That means simply that the gonococcus, instead of being transplanted from fairly new to old soil, as formerly occurred, is being spread gradually to richer and fresher soil, and in that way the germ is rapidly gaining in virulence. That explains the reason for the change in type of the disease. So we see that there are many features that render these diseases peculiar in their characteristics and therefore difficult to control.

This brings us to the question of measures that have been instituted to control venereal diseases. Ever since the dawn of civilization there has existed the profession of prostitution. In the early days, in the Roman and Greek Dynasties, the prostitute did not occupy the low and degraded position in which she finds herself in the twentieth century. She was in very high standing and occupied a distinctive position in the community.

When we turn from that era and proceed to the middle ages and later times we find, especially in France before the French Revolution, in the time of the old Bourbon Kings, that prostitution flourished. Madame Maintenon, Madame Du Barry, and many of those wonderful and brilliant women in the days of the early Bourbons, were prostitutes. We find prostitution existed in Germany, in Russia, in Italy, in China, in Japan, and every other country. In England in the time of Henry VIII there were many prostitutes. In these older countries practically all the nobility consorted with prostitutes and contributed to their maintenance. Prostitution was not then looked upon with disfavor as it is today.

The Anglo-Saxon people of the present era have always more or less frowned upon this old profession, and have tried by all manner of means to stop it. Restrictive measures have, however, always been ineffective, prostitution flourishing in the meantime in a manner more or less *sub rosa*. As a result of this attitude there developed in Europe, and later in the United States, certain segregated areas in all large centers of population which were called "red light district." Unfortunately in the Anglo-Saxon countries prostitution was permitted to exist in these districts almost without any attempt a a regulation or control, except through the medium of politicians and occasional supervision of the police department. At all events, control was ineffective and nothing was accomplished. In some of the higher class houses there was an attempt at a kind of regulation. This was not through activity of the people at large, not through any health department regulations or measures, but purely as a matter of commercial foresight on part of the landlady of the house who, seeking to establish a high class clientele, recognized that the contraction of disease by any of her patrons would mean loss of business. Although without legal regulation or control in any way, these houses were regarded as comparatively safe. Sometimes disease occurred in one of the inmates, but under such circumstances the landlady would force that particular inmate to undergo medical treatment until cured, or leave the premises. Such houses, however, constituted the exception rather than the rule. The majority of them eventually became hotbeds of disease and the rendevous of thieves, crooks, murderers, etc. So much was this the case that the community at large finally "rose up in arms" against these harborers of vice; and particularly was this true after the entrance of the United States into the World War and the establishment of cantonments in the various centers of population with restricted zones in which the red light districts were abolished. Louisville and Jefferson County, as you will recall, had such a cantonment—Camp Taylor,—where thousands of soldiers were stationed at one time.

Immediately after the red light district had been abolished, the prevailing belief among people in general was that we had finally gotten rid of prostitution. The remark was heard everywhere that the greatest source of danger to the young men of the community had been abolished, and in consequence venereal diseases would entirely disappear. Nothing could be further from the truth, for there has been a tremendous increase in venereal diseases during the last few years. Instead of gonorrhea, for example, being found most frequently in men from eighteen to thirty-five, it is now often encountered in boys as young as fourteen and men between thirty-five and one hundred. There has been a marked increase of the disease among married men over the ratio previously obtaining. This means that, despite abolishment of the red light district, "women are plying their old trade just the same." However, instead of being segregated in an isolated district and subject to at least some measures of control, they are scattered broadcast, they are continuing their operations in the highways and byways and in automobiles, verily the most dangerous character of prostitution so far as the dissemination of venereal disease is concerned.

I am a firm believer in personal purity and sexual morality, and have always been a serious thinker along the lines of prevention by education and moral suasion, yet my individual belief from a moral point of view may not be entirely in accord with that of the majority. I do not wish to be understood as assuming the attitude that we can do nothing to improve the existing state of affairs. We should attempt to wield our influence for good wherever it can possibly be done, even in the face of failures to control prostitution. We should educate our young women and men to the proper standard of sexual morality; try to create in them the desire for such education by impressing on them the infinite dangers of sexual promisscuity in relation to contracting venereal diseases. But morality cannot be legislated into the individuals of any community, I care not whether such legislation be municipal, state or national, the only way we can hope for the desired results is by education and moral suasion. If we will continue our efforts along these lines, definite good may be accomplished in the future. Unfortunately, knowledge of the dangers of contracting venereal diseases has but little deterrent effect.

I have under my care at present a young man whom I have treated for two attacks of gonorrhea, and who is now under treatment for syphilis. A short time ago he appeared with the third acute attack of gonorrhea, while I am still treating him for syphilis. I have had under observation quite a number of similar cases where the same individual had three to five gonococcal infections.

It is worthy of note that if educational measures were invariably efficacious, then there are certain classes of people who should never expose themselves to the venereal diseases, viz., doctors, medical students, and trained nurses. As a matter of fact, however, students and nurses not infrequently have these diseases, and doctors themselves have been known to contract them in the ordinary way.

The next feature to be discussed is personal prophylaxis. That this is oftentimes effective in preventing venereal infection cannot be questioned, but it is a matter simply and solely in the hands of the individual, and in the absence of proper instructions as to the methods of applying prophylactic measures, failures are to be expected.

The attitude toward personal prophylaxis is not uniformly favorable by any means. For example, the English nation says it is equivalent to countenancing immorality, i. e., we are assenting to promiscuous sexual intercourse by furnishing or recommending methods by which venereal diseases may be prevented. In the assumption of such an attitude, the fact is disregarded that people will expose themselves to infection anyway, and while we do not necessarily recognize illicit intercourse as being right or moral, yet if we can educate people to the proper use of personal prophylactic measures some good might be thereby accomplished in the prevention of infection.

Why is it that, when we have diseases the exact causes of which are absolutely known, and exactly how they are transmitted from one person to another is also known, we seem unable to control them? There is no other class of diseases of an infectious nature, the causes and manner of dissemination of which are understood, that we cannot in large measure control by prophylaxis and preventive medicine. Why, then, have we failed in our efforts to limit or control venereal diseases? Our failure is, I believe, largely due to the fact that the Anglo Saxon people in their prudery have lost sight of the proposition that the urge which causes men and many women to subject themselves to the dangers of contracting loathsome diseases, of loss of respect in their communities, of destroying their lives or physical health and ruining their families, is the result of a deeply ingrained instinct,—the instinct of race propagation.

When we seek for the origin of this we must delve deeply into the dim and distant eras of the past, to that time when first the primordial protoplasm was differentiated into male and female cells. From then onward there has been a constant desire for these two elements or parts of the original cell to come together so that by reuniting they may by secondary division carry on that for which all living things were placed upon this globe. Nature has amply provided the essential features to all living matter to assume reproduction of the species. From that time onward through the various phases of evolution this deeply implanted instinct or desire has been increasing and developing, and as a result the type of life has progressed higher and higher culminating in the human being. Throughout the ages there has been a constant struggle for survival of the fittest in race reproduction, and those in whom this instinct was strongest are the survivors.

Look at nature, observe the wonderful and intricate mechanisms, the result of natural selection, so formed and adapted as to secure cross fertilization, by which there may be reproduction of species. Turn to the vegetable kingdom, see the beautiful sweet-scented flowers with their wonderful organs of generation, stamens, pistils, anthers and stigmata. All these things were not created merely for the purpose of pleasing the human senses, but to insure the union of male and female cells and the resulting reproduction of species. See the various insects flitting from flower to flower carrying on their backs and heads the pollen which in their search for hidden nectar is brushed off on the stigmata thus insuring fertilization. To paraphrase a biblical verse: "Consider the lilies of the field, they toil not, neither do they spin, yet they propagate their kind by sexual union through the intermediation of bees.'

Then turn to the animal kingdom, nature has also furnished ample provision for reproduction of the species. In some respects animals may be said to be far superior to human beings, and this is especially true as regards their sexual proclivities. Males do not pursue females except during the period of estrum in the animal kingdom, whereas males of the human family are constantly and eternally in pursuit of females of the species for the purpose of sexual gratification. Beasts of the forest, the jungles, the fields, wander about at will and in perfect freedom seeking a mate, and when such a mate is found, provided she be then in the proper state to receive him, sexual union immediately follows. Again, unlike members of the human famil, the pair then separates, there are no additional dalliances, the performance of the sexual act being solely for the purpose of reproduction. In animals the female refuses to permit approach of the male unless she is at the time in the proper condition to receive him. It would appear, therefore, that the ancient aixom "sexual intercourse is intended for reproduction only" is strictly observed throughout animal life. In the human family the converse is literally true, sexual union is sought not for propagation but purely for the pleasure which it affords to both sexes.

Not until the height of evolution was reached in the development of the human being do we find artificial restrictions or barriers arising in relation to sexual intercourse. In the earliest times the barriers which first appeared were not artificial but natural, they were barriers of the most superficial kind, merely sufficient to prevent any but mature males from gaining access to the females. Under these circumstances only the stronger and therefore the most mature males ever reached the females. For many, many centuries the sexual act was not recognized by the people as having any connection whatsoever with the subsequent birth of a child. It represented nothing but one of the first pleasures that the people had to enjoy. It was simply the pleasurable sensation of gratifying appetite, similar to the sensation of alleviating thirst or hunger, and as such it was frequently and hunger, and such it was frequently and prompromiscuously indulged in.

As civilization increased among the semicivilized tribes, when the act was first connected with procreation, artificial barriers began to arise. Restriction gradually increased until now economic conditions, moral customs and laws have decreed that man is a monogamic animal and should not have union with the female until after the marriage ceremony has been performed. As a result of this from five to fifteen years must elapse after the age of puberty before male and female of the human species can enjoy the pleasures of gratifying a perfectly normal appetite. This brings into conflict the strenuous laws of nature and man-made customs and laws, the result of which is, in the vast majority of instances, particularly with the male of the species, that the man-made barriers are turned aside, the laws of sexual instinct prevail, and the sexual appetite is gratified. The difficulty with us here is that, in the evolution of the human being, our ethical and moral standards have developed faster than the ability of our will power to master our animal instincts, and just as Darwin says "man still bears in his bodily frame the indelible stamp of his lowly origin," so does he also in his instincts and passions and the appetites that arise therefrom. Whereas in a few highly cultured individuals it may be that these instincts have been mastered and held under subjection, ninety per cent of human beings, particularly of the male persuasion, as regards their animal instincts, are but a few leaps ahead of their cousins in the jungle.

The civilization of today attempts to lead us to control the sexual instinct by placing innumerable and increasingly difficult barriers and obstructions in the way, hoping thus to discourage and minimize promiscuity in sexual relations. Those responsible for present activities in this direction appear to have overlooked or ignored the facts that the sexual instinct is the strongest and most dominating of all the animal or human attributes, that they are merely following a plan which was evolved and tried hundreds of years ago with absolute failure, that human beings cannot be forced to remain sexually continent, that man-made barriers and obstacles placed in the way of obtaining gratification of this instinct only serve to increase the desire, and that no restrictions can be made sufficiently stringent to prevent people so inclined from indulging in illicit relations.

What, then, is the solution of the problem? I must confess that when I approach this phase of the question it is with considerable hesitation that I express my views, because the attitude I shall assume is one that is likely not to be accepted and may be very decidedly misintrepreted. I feel sure, however, that those of you who have known me for many years will recognize that I am speaking to you not as a moralist, not as a reformer, but as an evolutionist, as a physiologist, as a student of human nature. I am not an apologist for the prostitute, nor am I an advocate of free love, but I am one who, as Grover Cleveland once said, recognizes that "it is a condition and not a theory which confronts us," and that it is a condition which must be solved if we are not to see the human race condemned to irreparable injury and prolonged suffering.

Since, then, promiscuous sexual intercourse was the first and natural mode, and was indulged in freely for gratification of the appetite inherent in the male and female, since it has always existed and under the present form of civilization probably always will, it behooves us to look the facts boldly in the face and not be afraid to express our views, no matter how much they may be contrary to the existing ideas of morality and religion. If we can assure ourselves that the solution we offer is one which will save the community from suffering, then we should adopt the principles and proceed along the lines suggested in spite of any aspersions that may be cast against us.

Since we have from our study seen that unrestricted and unregulated prostitution as it exists today is causing widespread dissemination of venereal diseases, since at the rate they are now progressing if something is not done to check them it will be but a matter of a few years until the entire race will be syphilized, and thousands upon thousands of women and children will be damaged and crippled from the effects of gonorrhea, since these things are true, and, as it seems to us, prostitution in some form or other is absolutely going to exist, we should recognize the lesser of the two evils and have prostitution regulated, legalized, and adequately controlled. This control should be not under police protection, for this has been tried time after time and proven to be a failure, but under the department of public health, and the inmates of authorized houses should be regularly and adequately inspected in order that they may be made clean and kept clean and free from venereal diseases. This would imply the inspection of males as well as females. To bring about this state of affairs quarantine laws might have to be enacted and enforced, provided such laws are not already on the statute books. In my opinion a law should also be enacted making the known transmission of venereal disease a penal offense.

Unless some such measure as these are adopted in the near future, I fear that a large majority of the people in the community will suffer from the ravages of one or more of the venereal diseases.

DISCUSSIONS.

Griffin C. Kelly: The health department will not be outdone by Dr. Palmer even in his poetry, so we introduce our discussion by the immortal poem of Robert Service:

"I sit me down and wait, until they come—
 the nightly scum—
Ye sweethearts, sons, ye scornful ones,
 'Tis I who know their shame."

There are three points in Dr. Palmer's discussion to which we take issue:

(a) His opinion about the increased incidence of venereal disease.

(b) His opinion that the health department should exert as much labor upon latent syphilis as upon the primary and secondary stages.

(c) His opinion that the reintroduction of the "Red Light District" is a panacea for the control of venereal disease.

In order to take issue with Dr. Palmer's discussion, it is first necessary to show you the type of argument he is presenting to you. The whole discussion is limited to Dr. Palmer's personal opinions without trustworthy statistics or confirmed experimental proof. If he says that there is a ghost in the middle of the floor, the fact that we do not see it will neither prove or disprove to him the fallacy of his hallucination. For ourselves we doubt the gigantic increase of which Dr. Palmer spoke. Syphilis, after the discovery of America, became pandemic in Europe and was then a more or less malignast disease, decimating the French and Italian armies. No one ever hears of such a condition now. During the dark ages it was confused with other infectious diseases. The causative organism was not discovered until 1905, the specific test in 1906, and in 1910 Ehrlich gave us the first specific treatment. The specific test, although discovered in 1905, did not become perfected until several years later, and it is only the last few years that statistics on this test can be relied upon.

The fact that Dr. Palmer believes venereal disease is on the increase is due, we think, to the excellent treatment that patients in his office receive. The longer he practices the greater will be his practice. The educative measure instituted in the army concerning prophylaxis has, in our opinion, tended to decrease the incidence rate of venereal disease in the general population, and individuals that failed in prophylaxis now know the dangers of using patented medicines and herbs, and are therefore flocking to the office of the doctor. The aids of diagnosis being specific now, it is a great deal easier for doctors to find more cases of syphilis than they would find without them. Without a reliable Wassermann test, how else should the doctor discover his cases of latent sfphilis?

Latent syphilis versus the primary and secondary stages as a source of infection. Here we could direct your attention to the very well known fact that public health measures must be planned to take care of the greatest number of individuals with the greatest effect and the least cost. The type of treatment that we give to patients is to render them the least hazard to the remainder of the population. We do not feel it would be proper to spend the taxpayers' money for individualistc treatment. This is the field for the patient's personal physican and the two types of treatment should not be confused as Dr. Palmer has done. The health department is interested in the individual as long as he is a public hazard. When the patient is not infectious we are anxious to turn him back to his physician if he is able to pay, or to the City Hospital dispensary if unable to pay. Public health treats patients with both latent and clinical syphilis to make them non-infectious to their contacts, after that they are no longer a public health problem.

The red light district as a panacea for the control of venereal disease.

The doctor states that since the abolition of the district promiscuous intercourse, prostitutes and venereal diseases have increased and not decreased, and that if we should reintroduce the red light district under control of the board of health all our ailments would cease.

Promiscuous intercourse may or may not have increased after the birth control measures of Mrs. Sanger permeated down to the lower strata of society and army prophylactic measures given to all recruits, yet of this we do not care to argue. But when the doctor calls Cleopatra a prostitute because she had two or three lovers at different times and was perfectly true to one at a time and in a civilization that considered this moral, we shudder to think about his thoughts concernng the morals of his own heroes, like King Solomon and King David in the Bible.

We do not like to argue about opinions, but certainly the doctor would not like for us to discard the use of facts established by the best syphilographers of the world and try out his opinions. His argument concerning the control of a red light district by a board of health smacks of bootleggery and prohibition. Imagine paying a doctor $3.00 for a prescription, increasing the number of job holders on this internal revenue pay roll, the political plums for the administrator general of venereal disease, the ten per cent luxury tax as you enter the house, bootlegging prostitutes at the drug stores and calling around at your apartments when they hear you are going to have a party. Dr. Palmer must remember that Jesus was persecuted by his own tribe for his opinions, that Mohammed was driven across the sands by his own race for his opinions, and that he can't expect much help from his own tribe of physicians but persecution.

Arthur T. McCormack: Dr. Palmer always expresses himself so fluently and in a manner which is so convincing, that I feel rather overwhelmed in trying to discuss any of his papers, and especially one on a subject upon which I so profoundly disagree with him as in the present instance. Dr. Kelly has briefly but logically expressed my specific views, but certain phases of the subject seem to deserve emphasis as a general proposition.

In the first place, I do not agree with Dr. Palmer that there exists any essential difference between venereal diseases and other infectious disorders, except the manner in which they are contracted. In former times when formulating legal enactments and regulative measures for preventing or controlling the spread of venereal disease, I fear the most of us were led to assume the erroneous attitude of placing the entire burden, in so far as dissemination was concerned, on the shoulders of the female prostitute.

I wish to respectfully submit that there is no real difference between female and male prostitutes. From a public health standpoint they are exactly in the same attitude; they are both condemned because of the character of their acts; they are both equally guilty of spreading venereal disease; they are both just as dangerous to the community as rabid animals which are permitted to roam the streets at will. We have failed to sufficiently impress that idea upon the younger generation.

We are quite well aware, from our study of venereal disease during recent years, that the main reason why we have failed in our preventive measures is that the vast majority of prostitutes, or those harboring active infection, both males and females, belong to a class with the lowest order of intelligence. Education and moral suasion among individuals of this class, for the most part, will always be ineffective.

So far as the treatment of syphilis is concerned, I have had the opportunity of seeing the result of both the modern and older methods, and wish time would permit relating to you in detail my experience during the late war. It would confirm in some measure much of what Dr. Palmer has said.

The essayist's statement regarding the rapid increase in venereal disease during the last few years is distinctly contrary to available statistics. For example, of the total number of patients admitted to the United Municipal Hospital of New York in 1917, it was found that 26 per cent gave a positive Wassermann reaction. In 1924, the last year for which we have accurate statistics, 15 per cent of those admited had syphilis.

In Kentucky we have no general statistics available, but we have the records of inmates committed to penal institutions and asylums. In 1919, for the first time, we were permitted to examine these inmates, and found in the penitentiaries syphilitic infection in 76 per cent and in the asylums 38 per cent. During the last two years clinics have been in operation in nearly every jail in the state, and among persons committed to penal institutions 10 per cent had syphilis, and of those sent to asylums 15 per cent had syphilis. These statistics are indicative and also of great importance as they show a decided reduction in the incidence of leutic infection among criminals and the insane.

It may be known to most of you that Kentucky was one of the first states to utilize the knowledge of venereal disease prevention gained by army and navy experience during the war, just as we were the first to adopt vaccination against typhoid fever. For the prevention of venereal disease the health department is recommending and distributing chemical prophylactic packages, and thousands of them have been used successfully during the last year. Prior to the adoption of this plan, Dr. Jethra Hancock had thoroughly explained to the public, through lectures and otherwise, just what we were proposing to do along that line, and met with little or no opposition. Our plan is now gradually being adopted by other states and some of them are already using chemical prophylactic measures with remarkable success.

In addition to the foregoing we are having lectures delivered in some of the schools, also before labor organizations and in pool rooms, etc. In the latter places are found the class of people who suffer most from venereal disease.

I have found no facts to present regarding the Eighteenth Amendment, but it is my belief that the poor and ignorant classes suffer less from the evils of liquor than before the law became effective. People who persist in drinking the poisonous stuff they are able to purchase are the greatest sufferers, and among that class there may have been a slight increase in the incidence of venereal disease. Concerning this, however, we have no actual statistics, as physicians in their respective communities naturally see the larger number of these patients.

Our interest from a public health standpoint centers about the great body of our citizens who are innocent, especially the laboring classes, who constitute the majority of future fathers and mothers. Our object is to protect them from infection, and as Dr. Palmer has said, keep them in a condition of chastity. There are in every community a certain number of people who will go wrong anyhow, and it is these we try to teach. If we locate an infected person, we treat him throughout the course of the disease if possible. In any event we immunize him immediately. However, it is not the person infected about whom we are most concerned, we try to keep innocent people from being infected. That is our greatest problem and explains why we immunize the infected individual as soon as possible.

Under the Kentucky law every case of venereal disease is supposed to be reported to us. A tremendous number of cases have been reported and the reports are constantly increasing as physicians see the advantage of this plan. When a case is reported to us and the patient fails to return to his physician for treatment, we send a policeman after him. He is then forced to return to his doctor, go to the public clinic, or to some other physician and be treated. We occasionally encounter an individual whom no physician can induce to report to his office, but he will go to the clinic for treatment.

Any physician who does not report a case of known venereal infection, where the patient ceases treatment before the disease is rendered non-infectious and there is danger of contaminating innocent people, is, in my opinion, guilty of a criminal act. As physicians and health officers our duty is to prevent the spread of disease so far as it may be possible.

I am perfectly willing to admit Dr. Palmer's premise that the physician who administers one or two doses of arsphenamine or mercury for syphilis, and then allows the patient to discontinue treatment, has done that individual irreparable damage. There is little question that under such circumstances there will eventually occur a larger number of lesions of the central nervous system and internal viscera than if no treatment had been instituted. But from a public health standpoint the single infected individual is unworthy of consideration in comparison with innocent persons whom he might contaminate if he is permitted to remain infectious. And I believe we are guilty of a form of malpractice if we fail to make it perfectly clear to every infected individual who consults us, that if he ceases treatment prematurely he may expect the disastrous after-results which Dr. Palmer has so graphically described. If he then fails to continue treatment, or belongs to that class of individuals who refuse to be treated, under the law we can force him to undergo treatment. I believe we have accomplished a great deal of good along this line. Our physicians are perfectly willing to treat infected patients, but the vast majority of them go to the clinic rather than physicians. Some of them belong to that ignorant class who will not go to any doctor.

There is one other class of cases I wish to mention, an example of which I saw two years ago. A boy of eighteen or nineteen who was given a year in the penitentiary for a trivial offense, was asked if he desired to be paroled and he said no. His refusal seemed quite unusual when criminals of other types were lying in every conceivable way to secure parole, and the boy was asked for an explanation. He said he had been at Fort Thomas, and the day he was discharged that he and some other boys visited a house of prostitution and he contracted syphilis; that he had seen illustrations of the disease in army moving pictures and knew what he had; that his father was an honest, hard-working farmer who knew what syphilis was as he had often talked about it; that he feared to return home and stole a package of cigarettes so he would be sent to prison where he could be treated. The diagnosis of syphilis was made by the prison physician and proper treatment instituted. At the time I saw him the boy remarked: "I have now been here six months and my Wassermann reaction is not yet negative, and I want to stay here the other six months or until it becomes negative." That was the reason he refused to be paroled. That incident made a great impression upon me.

I respectfully submit that, despite Dr. Palmer's opinion to the contrary, our duty to the public demands that we refuse to consider the re-establishment of "red light districts," houses of prostitution or other place where our young men may acquire venereal infection which may cause them to commit criminal acts and be sent to the penitentiary.

Arthur M. Barnett: Dr. Palmer has given us an excellent paper on the venereal problem as it exists today. While we may not be in entire accord with the views he has expressed, we must give him credit for the admirable and forceful manner in which he has presented the subject.

Personally, I do not believe the re-establishment of segregated prostitution in Louisville would help matters very much, because there has been a markd change in the situation since abolition of the red light district. As the essayist has said, prostitutes are now to be found in practically every section of the city, they are plying their trade in automobiles along the highways an byways. Over that class of prostitutes it is impossible to exercise any control, nor can any other form of clandestine prostitution be regulated or controlled. As a matter of fact, there are probably today in Louisville just as many prostitutes as before abolition of the segregated district, but they are operating in an entirely different way. It is even said that many houses of prostitution are still in existence. While they may not display the customary "red lights" as formerly, yet they are open just the same and have been constantly. These houses should be considered in studying the venereal problem. No control is exercised over them and doubtless disease is often contracted from the inmates.

Dr. Palmer spoke of the prevalence of prostitution and venereal disease in Europe during the olden times. It was the conditions encountered during the recruiting of soldiers for the late war that called our attention to the alarming prevalence of venereal disease in this country, and the necessity of doing something in the matter of prevention and control. No doubt, as Dr. Palmer has said, some good may be accomplished by education and moral suasion, but I agree with Dr. McCormack that in many instances these measures are certain to be ineffective because of inferior intelligence possessed by prostitutes and those with whom they associate. The establishment of venereal clinics in various parts of the state, where those infected may be adequately treated, has probably been of greater benefit than moral teaching.

I believe it would be of distinct advantage if every physician in Louisville would report his cases of venereal disease to the health board, for the reasons stated by Dr. McCormack. It would also be helpful if physicians would thoroughly instruct their venereal patients how to protect themselves and those with whom they come in contact. The application of these measures would be of material assistance in preventing the spread of venereal disease.

The importance of personal prophylaxis should be emphasized. I have found many young men of today are very well posted as to the use of the chemical prophylactic package mentioned by Dr. McCormack, and I believe the employment of personal prophylaxis has resulted beneficially. The lectures given by Dr. Jethra Hancock and others before various organizations have also been advantageous as a preventive measure.

Personally, I disagree with Dr. Palmer that there has been a marked increase in the incidence of venereal disease in Louisville during the last few years. It is true, however, that we now encounter venereal infection among younger people than in former years. This is explained in large measure by the changed conditions which have already been mentioned.

I wish to thank Dr. Palmer for his splendid paper.

Edward R. Palmer (in closing): I thank the gentlemen for their discussion. I did not expect anyone to agree with me; in fact, doctors have disagreed with me so long that if I read a paper before this meeting and everyone had agreed with my views and "thrown bouquets" at me, I would have been disappointed. Yet, I am like the woman convinced against her will, I am of the same opinion still.

I think some of the objections can be answered. In the first place, Dr. Kelly has misinterpreted my remarks if he thinks I have been opposing the action of the health department. I stated in a paper some time ago that the reason claimed by physicians for using the so-called intensive treatment of syphilis was to render the individual quickly non-infectious; that as a physician my interest primarily was for the individual not the community, and my interest for that individual was not simply for the present time but twenty or twenty-five years hence. I stated as my personal belief, and everybody disagreed with me, that the intensive method of treating syphilis would be disadvantageous to the individual eventually.

As to reports and statistics showing that there has been no increase in the incidence of venereal disease: These reports are mainly from hospitals and clinics, and for that reason do not give us much information as to the conditions really existing among the people at large. The Eighteenth Amendment has made it so our working classes cannot procure the customary amount of alcohol, consequently they are working more, making more money, and giving better service. Not only that, but they are taking more "horizontal exercise" and contracting more venereal disease, but instead of going to hospitals and clinics for treatment, they are going to their physicians. Therefore, statistics from hospitals and clinics do not reflect the true state of affairs.

Unfortunately I believe, and probably the health officers will agree with me about this, that venereal diseases are more difficult to handle than any of the other infectious maladies. If every individual in Louisville who had venereal infection would go to physicians alone, these physicians would have quite a large practice in general medicine and spend the remainder of their lives working on venereal disease or its effects. The statement has been made upon good authority that 75 per cent of all men between eighteen and thirty-five years have, or have had, gonorrhea. I believe this statement appears in most of our current text books.

At present the world has gone crazy on the question of syphilis. Thirty years ago I do not believe one doctor in a hundred knew anything about syphilis. Now that the Wassermann reaction and arsphenamine have been discovered, every doctor is a syphilologist; but the status of gonorrhea remains about the same as it was thirty years ago. Physicians as a rule do not know anything about it and never will, they do not see much of it, and do not want to treat it.

Even my colleague, Dr. Barnett, denies that there has been any material increase in venereal disease during the last few years. I believe he is entirely mistaken about that. Louisville has become a cosmopolitan city. Twenty-five years ago the population of the city was approximately 200,000. In Louisville at that time there were four or five genito-urinary surgeons, and they were only fairly busy. The population of Louisville today is about 350,000, we have a special society, the Louisville Urological Society, with twenty-two members, and there are eight or more others who are not members who confine their work to urology, thus making a total of thirty genito-urinary surgeons in the city, and all of them are constantly busy. That seems to be a rather large addition to the ranks of urological specialists for 150,000 increase in population.

Dr. Kelly was kind enough to "hand me a bouquet or two" in saying that the apparent increase in venereal disease is due to the fact that I am such a good doctor and doing most of the genito-urinary work in the city. Of course I want to deny both allegations. It is my belief that there has been a marked increase in venereal disease in Louisvile during the last few years.

Bearing upon the source of infection, I wish to present some interesting statistics compiled by Fournier, of France, quoted from Finger's "Blennorrhea of the Sexual Organs," at a time when public prostitutes were under police regulation and subject to examination and control by health officers. According to these statistics infection was conveyed in 387 cases of gonorrhea in men by:

Prostitutes, public	12
Prostitutes, private	44
Mistresses, actresses	138
Working women	126
Servants	41
Married women	26

Finger says that we may see from these statistics that those women who are prostitutes without being under police control do the most toward the propagation of gonorrhea, married women less because they suffer less frequently, public prostitutes little although they are often infected, the control and treatment rapidly making the infection harmless.

As a further illustration: When a man comes to my office, and after a casual inspection without microscopic examination of a smear from the exudate, he is informed that he has gonorrhea, he will say: "Why, doctor, that cannot be possible, because I have had sexual intercourse only with a married woman who is living with her husband." I then tell him that the diagnosis is certain, and no microscopic examination is necessary.

Statistics show that it is twice as dangerous to have illicit sexual relations with a married woman as it is with a public prostitute; that it is four times as dangerous to have sexual intercourse with a private or clandestine prostitute as it is with a public prostitute. We have no public prostitutes in the city of Louisville today.

I may be a little old-fashioned in my ideas, but I am decidedly in favor of restoring the red light district, all authorized houses to be under the jurisdiction and control of the health department, as stated in my paper.

I have tried to impress you with the fact that I am not an apologist for the prostitutes, but I totally disagree with those of you who seem to think that venereal disease is confined to the lower classes of people. Venereal disease is no respecter of persons and has permeated strata of society in which it was never known before, but the statistics emanating from hospitals and clinics do not reveal these facts.

I also disagree with those who believe there is more than a small minority of human beings, especially of the male persuasion, who are what we might call sexually moral throughout their lives. I would venture the statement that there are not ten men in a hundred who could lay their hands on the Bible when death was approaching and truthfully swear: "I have never had sexual intercourse, except with one woman, and she was my wife." This means that 90 per cent of male beings have had illicit sexual intercourse and the majority of them have doubtless "known many strange women." Practically all of them sooner or later contract venereal disease. This being the case, why should we not recognize the fact that prostitution exists and will probably continue so long as civilization remains as it now is? What is the sense in our being hypocrites and denying something we know to be true? We know that the majority of people indulge in illicit sexual relations, and that being so why should we not look the facts boldly in the face and do everything in our power to control the sources of venereal infection and prevent the spread of disease, just as is being done by the board of health in the control and prevention of other transmissible diseases?

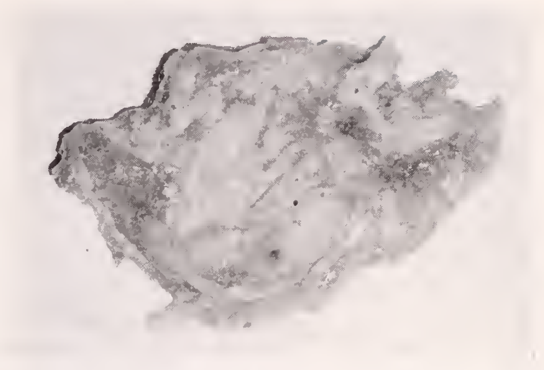
PYLORIC OBSTRUCTION: GASTRIC MALIGNANCY. CLINICAL REPORT.*

By J. GARLAND-SHERRILL, A. M., M. D., F. A. C. S., Louisville.

W. A. N., a male, aged 51, presented for advice April 9th, 1927. Roentgen-ray pictures made previously showed complete obstruction at the pyloric end of the stomach. The man gave the history that he had been fairly well all his life. He had typhoid fever at the age of 29, and had occasional attacks of lumbago. For some years he had "sour stomach" one hour after eating, especially when he ate too much. There were no other symptoms of any moment.

Five weeks prior to the time I saw the patient he complained of gaseous eructations. One week before I saw him he began to vomit bitter, sour material frequently with a bad odor. Water occasionally was returned . His appetite had been good. Vomiting occurred within half an hour after eating and this relieved him. Sometimes the vomitus consisted of food eaten two days previously. He usually became comfortable after vomiting, and could then take and retain a small amount of food. He had no pain whatever.

Examination showed a slender man of florid type. He was practically bald, his skin was smooth. The sclera showed slight icteric change. Teeth fair, throat negative. No glandular involvement anywhere and no enlargement of the thyroid. Chest flat in type, excursions free, pulmonary sounds normal. He had a mitral regurgitant murmur heard most distinctly with first sound, but compensation was complete. Apex beat displaced slightly to the left. There was a palpable mass the size of a small egg in the pyloric region. This had been discovered by those who had previously examined him. Otherwise the physical examination was negative.


No. 1. Pyloric Stenosis Malignant. Adenocarcinoma of stomach.

Roentgen-ray examination by Drs. Enfield and Fugate showed complete obstruction of the pylorus. Their report follows:

"Examination of the stomach after barium meal shows marked, almost complete, obstruction of the pylorus. The outline of the stomach at this point being smooth and sharp, together with the contour of the remainder of the stomach, suggests that it is a benign obstruction of long standing, due to gradual closing in of scar tissue from an old duodenal ulcer. There is nothing to suggest malignancy. The stomach itself appears normal, except for dilatation and hypertrophy. There is no obstruction at the cardia."

I concluded when I first examined this man that he had cancer rather than ulcer, because: first, of his age, second, the palpable mass. However. neither of these would positively exclude ulcer, so it was merely surmise on my part that he had cancer rather than ulcer. Another factor was the absence of pain. He complained of less pain than is usual in most cases of ulcer.

The patient was operated upon April 11th, the procedure consisting of pylorectomy and gastroenterostomy. The tissues were excised for some distance on each side of the ulcer and posterior gastroenterostomy was completed. The ulcer was found on the posterior surface of the lesser curvature of the stomach. It was a circumscribed, hard, indurated ulcer about one inch in diameter. The entire mass removed was about three and a half inches in length. The operation was essentially a median epigastric resection of the pylorus and part of the stomach, including the ulcer and also a portion of the duodenum and adjacent

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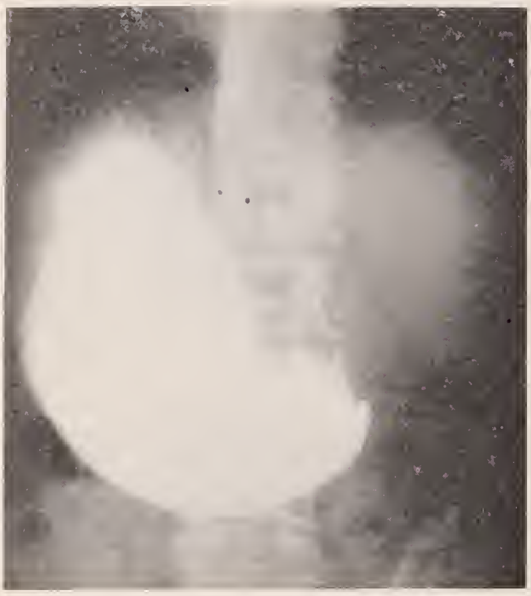
*Read before the Louisville Medico-Chirurgical Society,



No. 2. Roentgenogram showing complete stasis.

glands, and posterior gastroenterostomy.

The patient had recovered sufficiently in ten days to leave the hospital and is in good condition at this time. The following is the laboratory report by Dr. Stuart Graves:

"Section of the stomach wall shows infiltrating masses of glandular epithelium with mitoses. Microscopical diagnosis: adenocarcinoma. The sections from the lymph glands show atypical masses of glandular epithelium infiltrating the gland. Mitoses frequent. Moderate leucocytic reaction, chiefly polymorphonuclears."

An interesting feature was the failure of the patient to complain until a short time prior to the development of stenosis. From the roentgenogram it would appear the arrangement was such that when contraction occurred the duodenum was pressed tightly over the end of the stomach; in other words, over the pyloric opening. Occlusion perhaps came from spasm of the pylorus and the fact that the duodenum fitted closely over the end of the stomach like a valve. This is perhaps the reason why food was retained and not forced through under manipulation when the examination was made by Drs. Enfield and Fugate. No one can foretell what the result will be in a case of this kind.

The question must be considered: What shall be the further treatment of this patient as regards the use of radium or the roentgen-ray. Iam somewhat in doubt of the efficacy of either radium or the roentgen-ray in cancer of the stomach with glandular enlargement in the neighborhood, and yet I have seen so many things occur in cancer that were not what we expected to see that I do not know what to say.

The prognosis is grave in this particular case. When we talk about seeing cancer patients early, we cannot hope to see them much before ten days after the symptoms become marked. Undoubtedly this man had some symptoms but did not go to his physician for observation in previous years, how long ago we cannot say.

Some observers are now claiming that ulcer does not as a rule precede cancer of the stomach. I do not entirely agree with that belief, but it is the teaching of a large number of surgeons and medical men of prominence that gastric ulcer is not a great predisposing cause of cancer.

We performed the operation described under ether, notwithstanding the fact that surgeons are now doing many operations on the stomach under local anesthesia with satisfaction and very little pain.

DISCUSSION.

John W. Moore: I agree with the roentgenologist in the pre-operative diagnosis, for the reason that it is unusual to find total obstruction in cancer of the pylorus, especially cancer of this type.

I do not doubt that cancer was present, because there was a metastatic growth in the lymph node, but I would be inclined to think there was in addition an inflammatory condition causing the obstruction.

John W. Price: I have little to add as I do not see many cases of cancer of the stomach. Dr. Sherrill's report is very interesting, because as he has said the roentgenograms are somewhat different from what we would ordinarily expect considering the microscopical diagnosis. The history of the case, however, is certainly suggestive of ulcer and the findings prove there was an ulcer and the lymph node shows malignancy. The case is especially interesting because it does not conform to all of the ordinary findings of malignancy of the stomach. My belief is that the obstruction was due to spasm of the pylorus similar to the obstruction that occurs with ulcer and without malignancy. Food was retained in the stomach because of the pyloric spasm. The man evidently had temporary obstruction at the pylorus. I think we have all seen such cases. Sometimes they occur from simple duodenal and pyloric ulcers. The nearer the ulcer is to the pyloric ring the greater the spasm.

As to the treatment employed by Dr. Sherrill in this case: I think we all agree that he followed the correct procedure. Certainly the outlook in the case is not brilliant, but the patient has been given the only chance.

Regarding the after-treatment: I believe treatment with radium would be useless, and treatment with the roentgen-ray would be dangerous.

J. Garland Sherrill (in closing): The explanation offered by the laboratory findings was no more satisfactory to me than to those who have discussed the report. My diagnosis before operation was stenosis of the pylorus probably malignant. This was based largely on the age of the patient. At the age of 51 years we do not see many acute ulcers o fthe stomach. The ulcer age is much younger as a rule. The second factor was the palpable mass. A mass is detected sometimes, but very seldom, in ordinary ulcers. The presence of a palpable mass is always suggestive.

Another thing was the fact that this man had a short history which would point toward ulcer, but the absence of pain impressed me as being more like the onset of cancer.

The explanation of the food retention was not clear to my mind. The man had been treated with atropine which ought to have relieved any ordinary spasm. A sclerosed ulcer of the stomach is very much like congenital pyloric stenosis in a child. The tissues of the ulcer are thickened, firm and contracted. When a rigid tube is contracted until the opening is very small, it does not take very much to block it.

Care was used to remove all the enlarged glands adjacent to the ulcer and the surrounding omentum. Most of the glandular enlargement was in the lesser omentum. The gland-bearing area is largely at the pyloric end of the stomach but not entirely.

The man is gaining flesh and seems to be cheerful and happy. If the operation gives him comfort for six months or a year certainly some good will have been accomplished.

The main point I wish to emphasize is: whenever there exists a lesion in the stomach the nature of which is not entirely clear, it is unwise to carry the patient along for any extended period without thorough investigation. Every effort should be made to determine the exact condition present. Serious gastric lesions that do not respond to the ordinary treatment should certainly be opened and examined surgically to see whether or not anything can be done for the benefit of the patient.

Treatment of Seasickness.—Fischer thinks that the direction of the motion of the lymph in the vestibular apparatus is the decisive factor in seasickness; horizontal motion is well borne, while vertical motion causes typical discomfort. The best results seemed to be obtained with the patient prone and the head turned to one side so that the ship's motion was chiefly transferred to the lymph in the horizontal and the posterior vertical semicircular canals. The motion of the ship and the direction of the berth in relation to the ship have to be considered in selecting the suitable positions.

WOMAN'S AUXILIARY NOTES

LOUISVILLE PHYSICIANS
1832

Following is a list of Louisville physicians copied from an old directory printed in 1832. Anyone having any information concerning any of these physicians or earlier ones, please send it to Mrs. W. F. Boggess, Chairman of the Historical Committee of the Woman's Auxiliary, Jefferson County Medical Society, Weissinger-Gaulbert Apts., Louisville.

Baum, W. J. C. physician, r s s Main b 5th and 6th
Baum & Knight, physicians, 5th b Main and Market
Brodnax, Robert, physician, n s Market b 8th and 9th
Brodnax, Robert, office n s Jefferson b 3rd and 4th
Dashiell, J. Y. physician, s s Jefferson b 1st and 2nd
Declary, J. P. physician e e 5th b Main and Walnut
Ellston, Dr. Physician, s s Jefferson b 6th and Centre
Ewing, Irwin, physician w s 2nd b Jefferson and Market
Ferguson, Richard, physimian n s Market b 2nd b Jefferson and Market
Ferguson, Richard, physician n s Market b 2nd b Jefferson and Market
Fitch, Wm. physician, at P. M. Carey's, Main
Galt, W. C. physician, ns Main c 2d.
Gist, R. P. physician, rns Market b 7th and 8th
Hall, B. H. res, physician & c hospital
Hamilton, Wm. B. physician, s s Market b 2nd and 3d
Hagan, John, student of medicine at Dr. Rafferty's
Harrison, J. P. physician, 7th b Main and Market
Henry, A. G. physician, e s Wall b Main and Water
Herndon, M. physician, s s Main b 5th and 6th
Johnson, Edward, physician, s s Green b 4th and 5th
Johnson, J. S. physician, ws 6th b Main and Water
Knight, J. W. physician, ss Main n 5th
Love, Dr. physician, n s Market n 8th
Luckett, Levin, physician, s s Main n 2d
Maddox, J. J. N. physician, 2d b Main and Market
McCartney, Joseph, physician, ss Main b Brook and Floyd
Merrewether, Wm. N. physician, ns Jefferson b 3d and 4th
Middleton, Joseph, physician, ws 8th n Market
Miles, James I. physician, shop, ss Market b 2d

and 3d
Miles, James I. physician, r lower end Market
New, Chas. B. physician ss Walnut b 7th and 8th
Owens, Jas. H. physician, ns Market n Jackson
Pendergrast, Garrett E. physician, r Market b 7th and 8th
Pendergrast, Garrett E. do shop ws 5th n Main
Powell, L. Lewellyn, physician, ns Jefferson b 1st and 2d
Rafferty, Bernard, physician, ss Main b 5th and 6th
Reese, Silas, physician at James Coleman's
Rogers, Coleman, physician, r Centre b Green and Walnut
Rogers, Coleman, do, office ne Jefferson b 4th and 5th
Shackleford, Wm. physician, 7th b Market and Main
Smith, A. G. surgeon, ss Main n 5th
Smith, G. W. physician, ss Jefferson b 1st and Brook
Talbot, John M. physician, ss Market n 5th
Vail, Ira, physician, r Jefferson b 1st and Brook
Vail, Ira & Co. druggists, d Main and 3d
Weatherford, Hardin, physician, c 7th and Market
Williams, W. C. physician, b Walnut and Green

IN MEMORIAM.

Resolutions Passed By The Louisville Medico-Chirurgical Society.

Dr. Ben Carlos Frazier became a member of the Louisville Medico-Chirurgical Society about twenty-five years ago. He was in the early prime of manhood and nature had richly endowed him with that quality of mind which is miscalled common sense. He had a wide experience in both medical and surgical practice. He was a genial companion, a good listener as well as a good talker. He had a keen sense of honor and was always just in his professional relations.

With these qualifications he at once assumed a position of leadership in the Society which he maintained to the end. To its scientific side he contributed essays based on his personal experience and therefore practical and valuable, and discussions which, even on subjects not strictly limited to internal medicine, were suggestive and illuminating. To the social side he brought a genial personality, which added much to the pleasures of the evening. As to the administration of the Society his advice was always sound and sensible.

But a tribute to Dr. Frazier must include more than his relations to medical societies. In large measure he was typical of the doctor of the old school. To his patients he was more than a physician; he was their friend and councilor. He inspired their confidence. He commanded their respect. He won their affection.

In memory of this faithful friend and beloved physician, we spread this record on our minutes, and present it to his family with assurances of our sympathy and esteem.

S. G. Dabney, Chairman.
J. Garland Sherrill,
Louis Frank,
Chas. G. Lucas.
Cuthbert Thompson.

NEWS ITEM

THE STORY OF THE RIPPER BILL

The story of the "Ripper Bill" as told editorially in the Lexington Herald from day to day during the General Assembly, under the able editorship of Hons. Desha Breckinridge and Tom Underwood.

(Sunday, February 19, 1928)

THE BOARD OF HEALTH

The "ripper bill" aimed at the state board of health has reappeared in Frankfort. This highly undesirable bill has "died many deaths" before, but the restless ghost refuses to slumber and stalk through the legislative halls at each succeeding legislature.

There is but one way the state board of health and its work may be judged, and that is by what has been accomplished and what is being accomplished in Kentucky in the preservation of health and in extending the span of life.

The fiftieth anniversary of the state board of health will be commemorated in March. For half a century this work has gone on, increasing in usefulness, developing in strength, widening in the scope of its activities and benefitting from the experience of the years.

In the fifty years that the state board of health has directed the health work of Kentucky, the average life term of Kentucky citizens has been increased from 32 to 50 years.

It has been largely through the activities of the state board of health that diphtheria, which once took its lamentable toll from the children, has been brought under control. Diphtheria immunization, typhoid inoculation, vaccination which has served virtually to eliminate smallpox, all these preventable steps have added to the health of children and of older persons and have increased the average span of life, reducing the lamentably heavy infantile mortality rates.

The prenatal work under the direction of Dr. Anna Veech and Dr. Juanita Jennings has given protection and valuable advice to the mothers of the state. Pre-school roundups, suggested and directed by the state board of health, have resulted in better health among the school children. At present a number of counties have followed the suggestion of the state board in having physical examinations of all children before they enter school at the beginning of each school term. In this way necessary attention, such as removal of tonsils or adenoids, has been attended to in advance of illness. The child has been made healthier as a result. There has been less loss of time from the classroom.

Dental clinics have been held in many counties and dental hygiene is being taught throughout the state. Public service laboratories of greatest value to the public are conducted in Louisville. Sanitary engineers from the state board of health render an indispensible service in inspecting the sanitary conditions of schools, in inspecting the sources of water supply, in dealing with sewage problems.

Thirty-six counties of the state now have full-time health officers. Vital statistics are kept more adequately, due to a system instituted during recent years by Dr. James Blackerby. These statistics have become of increasing importance as health work has developed in furnishing a foundation of fact for dealing with health problems.

The state board of health now conducts in Louisville a training school for health officers and laboratory technicians. Through the services of this school of instruction men and women are trained for health work of the nature needed in the state. At the present time health officers must have technical training.

As an example of what the state board of health can do, and is doing, the excellent handdling of the health situation following the floods in eastern Kentucky will come to the minds of manys Kentuckians. It will be known how the entire state feared that a typhoid epidemic would come in the wake of that flood disaster, visiting sickness and sorrow over the entire area of those stricken counties where the receding waters left waste and destruction.

The action of the state board of health in this emergency was immediate and efficient. It is estimated that 500,000 typhoid inoculations were given. As a result there was less typhoid in the flood visited area during the weeks that followed the flood of last year than there had been in years before. In the emergency of the infantile paralysis epidemic prompt steps were taken which safeguarded against spread of this disease.

There is no criticism of the state board of health's work, there have been no charges of incompetency, there is no claim of extravagance or waste.

The only fight seems to be to give the governor the full power to name the state board of health. The only purpose behind this measure seems to be a political purpose.

Practically every governor now living who has taken office in Kentucky has had his doubts about the state board of health at the beginning of his term of office. It is the proud claim of those who defend the present law that every living former governor of Kentucky today stands convinced of the effectiveness of the state board of health as at present directed.

At present the state board of health is composed of one homeopath, one osteopath, one chiropractor, one eclectic, one pharmacist and three alleopaths. The recognized organizations of practitioners in the state recommend to the governor three nominations for selection to each vacancy. From this number the governor makes his selection, though the law is not mandatory in ginding him to select from this number.

The details of selection, however, are not of highest importance in comparison with the results obtained. The Kentucky law has been copied by many other states, the health work of Kentucky is referred to as an example of what may be done. Ohio, with its immense appropriations for health protection, is now looking to the Kentucky plan as an example to guide her.

The whole question is whether the work of fifty years which has continued unfailingly forward and upward is to be sacrificed, whether this splendid program is to be made a scapegoat for political purposes.

PUBLIC HEALTH, PRACTICAL POLITICS AND THE RIPPER BILL

(Thursday, March 8, 1928)

The house of representatives on Tuesday, February 21, defeated by a vote of 46 to 42 a measure designed to destroy the present state board of health. It proposed the substitution of a board named by the governor.

The defeat of the measure in the house was considered final for the present session of the legislature.

Now this bill, with the same purpose but slightly altered to fit the occasion, is jerked up by the senate rules committee at a lunch hour recess, posted on the blackboard, passed and sent back to the house with the intention that it will have another chance despite its former defeat.

Unquestionably the rules of the house form a barrier. A clincher motion was passed on the house measure. The rules provide that once a question is disposed of, there shall be no further consideration of anything pertaining to its subject matter. This would apply to the senate measure under ordinary circumstances.

A further barrier to this bill is presented in the overwhelming sentiment in the state against political tinkering with the state board of health. Long years of service and growth have developed this agency as a vital factor in raising the standard of health of Kentuckians and in the progress of the commonwealth.

There appears, however, serious danger that this measure will pass the house of representatives. If so it must be rammed through, for the vote taken two weeks ago, before the processes of coercion and persuasion set in, revealed the sentiment and judgment of the majority of the members of this branch of the legislature to be against the measure.

* * * *

The state board of health should be judged by its health work alone. The people of the state are virtually unanimous in this belief. What has been done and what is being done is a matter of record and of common knowledge throughout the state, among physicians, in homes and in schools.

In Frankfort, however, the hour seems to have passed when the accomplishments in health work will be given the consideration they merit.

Every argument made in behalf of the ripper bill is a political argument. Every charge that is made against the state board of health has to do with politics. Every plea is one of practical politics.

* * * *

How any right-thinking member of the legislature could consider a matter of this kind purely from a political viewpoint is beyond comprehension. It is absolutely unbelievable that a question involving the protection of the health of Kentucky communities and of the health of Kentucky's children should be weighed in the balance against political considerations.

If, however, this is the challenge, let it be met If this issue is to be the only one raised, let it not be dodged.

When a destructive movement threatens the usefulness and service of the most important welfare arm of the state government, the most vital in its relations to the health and happiness of the state, then no mincing of words is excusable and any evasion or artifice in meeting the facts or in dealing with them can only be condemned.

* * * *

The only argument that is being made in Frankfort in behalf of this bill is that Dr. Arthur McCormack has taken part in politics.

The Herald holds no brief for Dr. McCormack. If he has meddled in politics he has made a mistake and the Herald has no defense to make for it.

In health matters the record of the board of health under his guidance is splendid, and truly, no good argument can be made against continuation in office, when this is vitally necessary for a thoroughly technical position, for developing and carrying forward a constructive program.

It certainly cannot be said that The Herald wears the collar of any exploited political genius who may nurse shattered dreams in unlamented exile.

But the very current political history of Kentucky shows beyond the peradventure of a doubt that there has not been any forceful use of Dr. McCormack's position politically. Any charge of this kind is on the face of it a ridiculous sham, for every claim or charge that is made shows per se that even were he active, no successful results have ever been obtained; that he has a remarkable talent for always being associated—even in the allegations of his enemies—with losers.

But in the attempt to "get" Dr. McCormack for political purposes and destroy the state board of health as at present constructed after half a century of labor and to disrupt thehealth work that is extending to every county in the "getting," let the fact not be overlooked that there is being built up a resentment that will break like an unharnessed flood and react certainly and swiftly against those who defy and outrage public opinion.

If Governor Sampson is misled into the trap of giving his influence and signature to this bill, it will react against him.

Every attempt will be made to hang this ripper bill around his neck for all time to come, to mark him with it and fasten it to him so that he can not be rid of it.

Politically, the naming of the board of health will be all liability and no asset. The governor names the board now. The law provides only that he shall consider nominations submitted by associations of physicians of the state, and select from the number submitted.

To take this board of health and make it a political body will be political folly and ruination. It will be disastrous to those who accomplish it. They who think they are accomplishing a master stroke actually are riding recklessly and ruthlessly to their own destruction, heedless of the wreckage they are causing and of the everlasting folly of their act in creating the means of their own inevitable disaster.

SPEAKER MILLIKEN'S CHANCE

(Friday, March 9, 1928)

When the ripper bill comes from the rules committee there will be presented to John Milliken, speaker of the house, a high obligation and a splendid privilege.

The Herald congratulates him upon the opportunity that is soon to be his.

Seldom in the career of any young man in public life, with political future and the confidence of his associates and, no doubt, with high aspirations to serve his commonwealth, his party and his people, does such an opportunity come. When he arises from his chair to rule upon the parliamentary question in regard to the ripper bill, the eyes of an entire state will focus upon him.

In a single moment, commanding the spotlight as no speaker of the house has done for many years, he will voice the decision that will forever be associated with his name.

It doesn't often happen, like that. Politics has no sense of the dramatic. The splendid moment seldom comes. Many who have followed the high calling of public service have sighed in vain for a glorious chance to show their caliber, to answer in a single stupendous word, to reveal in a single heroic act their character and their devotion to duty.

At times upon the field of battle the hour of destiny has struck and, hidden in the ranks, some man inspired has arisen to grasp a fallen standard, to wither a foe and inspire his comrades by a noble deed or to hurl a shining lance.

But in the marble halls where deliberative assemblies meet, seldom does there come to any single man such a time, "when danger winks on opportunity" and when at an appointed hour there is found "the nick in Fortune's restless wheel."

When that time comes to Speaker Milliken, above the din and clamor of the house of representatives he will hear unspoken words, whispers in that whirlwind:

"I knock unbidden once at every gate—
If sleeping wake—if feasting, rise
Before I turn away."

And he will hear the voice of nearly every doctor in the state saying:

"Don't do this thing."

And he will hear Democrats from all over the state of Kentucky—the "silent voice of Democracy," as Wilson called it—asking why, when the bi-partisan boards have been protected against attacks that would rip a Republican governor of his authority, the choice of the Democratic caucus for speaker of the house should let the rules be violated to make a political assault on a nonpolitical board to give more power to a Republican governor.

And he will hear his own voice coming back from that solemn moment in the chamber of the house when with hand upon the open Book he took the hallowed oath to be "faithful and true" and to protect the laws of the commonwealth, all laws from the constitution to the rules of the house of representatives.

* * * *

The rules of the house of representatives are clear. They read:

"If any bill, motion or resolution, has been, by vote, carried or lost and a motion is made to reconsider the vote by which the bill, motion or resolution was carried or lost, and said motion to reconsider is laid upon the table, then no further motion shall be entertained relative to the subject matter carried by said bill, unless by the unanimous consent of the house."

The house of representatives had a bill before it similar to the senate bill. When that measure was before the house, it could have been amended or altered in any way the representatives saw fit. They considered it in the form in which they chose to consider it, and defeated the measure.

Can anyone deny that this new measure is not "relative to the same subject matter?"

* * * *

Ah, Mr. Speaker, you have friends who will weep for you, fearful you may fail; fickle Expediency in her glittering garments will whisper seductions in our ear; Duty is a stern leader, but his trumpet call is clear.

Stick to the rules, sir, stick to the rules!

As the presiding officer of a distinguished assembly it is your duty to rule upon a question of law.

Make the ruling fair! To dodge would damn you. To violate the rules to permit those who will stop at nothing to accomplish their purpose in this measure will stand you upon the altar as a scapegoat and a sacrifice for those who would use you in this act.

Surely the talk that is going through every precinct in the state has not escaped the stately corridors of the palatial capitol. You must know that the question of why and how there could have been a change in majority sentiment since the bill was first considered is being asked. You must know that if the house of representatives reverses itself on this measure there will be questions to answer and, if you will pardon it, "hell to pay."

If you can stand the gaff of that, do the braver thing. If you have close friends committed to this folly, help to save them for themselves.

The word has gone out that the fight to prevent this calumny is lost; that a majority of votes mustered by the faltering recruits who are deserting as pressure knocks or persuasion lulls them into stupefied acquiescence will ride roughshop over the rules of order.

The Herald does not believe it. Upon your manly shoulders it pins its faith; upon your integrity it stakes its hopes. It can not believe that after the house once has acted finally upon this question you will let it be called on the floor again during this session of the general assembly.

PLENTY OF ROPE

(Saturday, March 10, 1928)

There is no deep mystery about the situation in Franfort.

Those on the scene, actively engaged in legislation as duly elected tribunes of the people, or otherwise, and observers without the limits of the capital city have noted the conspicuous absence of those forces which for the two past legislatures sought to block and hamstring a Democratic majority in both houses.

Beckham, a titular leader only, has passed from the picture. Haly, as a political factor, exists only as a tradition, absent, inactive, impotent; resurrected only by his bitterest enemies as a myth, a straw man to be knocked down, a scarecrow to befuddle the issues that arise. The Courier-Journal continues its lambasting and lampooning, serving only to hang like the Old Man of the Sea around the neck of whatever it advocates, and to drag it down.

Whatever else may be said concerning the present session of the legislature, it can never be claimed by the most devout friends of the Fields administration of the past four years that they have not been given a free rein during the present session of the legislature by those who embarrassd and assailed it while it continued in power.

Nor can the most ardent partisan admirer of Governor Flem D. Sampson claim that a Democratic majority has refused to give to him the right hand of fellowship; to treat his proposals with the consideration and dignity a governor's recommendations should receive and to give to them the support to which they are entitled upon their individual merits.

* * * *

Only one explanation of the situation can be made. Democrats who are unwilling to place partisan considerations before the welfare of their state have given to Governor Sampson full support, even to the extent of being accused of deserting their party standards. Moreover, those who are the enemies of the governor and of those Democrats who are giving to him their support, nursing their shattered dreams far from the scene of action, are slyly hopeful that those who have the undisputed, uncontested mastery of the disunited Democratic party and those who hold full sway under the regime of Governor Sampson, if given plenty of rope will hang themselves. Gladly enough those who hitherto have been obstructionists become idle bystanders as they hope to see those for whom they bear a cordial hatred rush toward the brink of disaster without a warning; heedlessly, recklessly, ruthlessly rushing onward, they may hope, toward the brink of the "destruction that wasteth at noonday."

The Ripper Bill is but an incident. The only accusation made against the board of health is that Dr. Arthur McCormack has played into the hands of Haly.

But who is Haly today? What is he to any candidate or any cause but a burden? What is his power, as of today, but a delusion and a sham, whoever projects it to the fore? What can he do but languish in political retirement,—except, perhaps,—to wait?

It has been a long battle, a grievous struggle that has dispelled illusions, that has caused its scars and pain. But the ballast has been jettisonued. As of the present it is dormant, powerless.

* * * *

Never in the history of Kentucky did a graver responsibility rest upon the shoulders of a Governor to keep the faith; never in the history of the commonwealth has a graver responsibility rested upon the Democratic party to keep in the paths of honor and service.

If chicanery, if barter, if swaps and trades, if betrayals, if that most impractical divination of human error, "practical politics," is to hold sway with all its depredations and wreckage, preference and plundering, then the time has come for those who love their state to take a stand.

If appointments are to be withheld from the senate in violation of the law, if rules of order of the house of representatives are to be scuttled as a "scrap of paper," if votes are to be changed over night and bargains made upon the floors of the legislative chambers, if positions of public trust are to be sold for votes, then those who have been champions can no longer stand their ground, those who have been defenders can find neither cause nor weapons for defense.

* * * *

It is an unpleasant duty to write these words. The task is not sought but forced. But the responsibility is inescapable. Plain words must be spoken, not in anger but in hope; not in malice but in charity; not in reproach but in warning.

In the din and confusion of Frankfort's crowded halls, lawmakers and officials often do not appreciate what is being thought and said by those who in their homes, on their farms and in their stores are the real Kentucky. And so, for what it is worth, this summary is presented to those who will hold sway in the eventful closing days of the general assembly when so many matters of vital importance to the future of the commonwealth hang in the delicate balance of a legislative jam.

WH DID SENATR McBRAYER VOTE AS HE DID ON THE RIPPER BILL?

(Monday, March 12, 1928)

Senator J. J. McBrayer, of Fayette county, was counted as being against the ripper bill by those who are interested in the preservation of the board of health and in the protection of its service to the commonwealth, up to the time the question of its passage was submitted in the senate.

When the roll was called Senator McBrayer voted for the ripper bill.

He must have had some good reason for voting as he did.

Senator McBrayer made no explanation of his vote in the senate. It was not incumbent upon him to do so.

But he does owe it to himself and to his constituents to give the reasons why he voted as he did. For such explanation as he may care to make, The Herald gladly offers him the use of its columns.

The Herald has not been informed by him as to his position, before he voted or when he voted. But under the circumstances he should not permit any misunderstanding of his position. He should make his reasons clear. There has been and will continue to be more comment concerning this single vote than concerning all the other votes he has cast, combined.

Those who supported Senator McBrayer in his race for the state senate, his friends and constituents regardless of whether they may have supported him or not, will feel that it is due them that they know what led him to vote as he did, in view of the continued pleas that were made to him not to vote for the measure. Without an explanation from him, while they may give no ear to any attacks that may be made against him, they will be powerless to defend.

HOW FAR MUST THE RIPPING GO IN THE FIGHT ON THE BOARD OF HEALTH?-

(Tuesday, March 13, 1928)

If the ripper bill passes the house of representatives Governor Flem D. Sampson cannot escape the responsibility for this destructive folly.

What for four years has been Dr. Milton Board's ripper bill is at the present moment Governor Sampson's ripper bill.

It bears the label of an administration measure.

More than that—the satellites, messenger boys, advisers and others who constitute an ante-chamber cabinet, have left nothing undone to force its passage, to ram it through the house of representatives in violation of the rules of order under which the legislature operates, even through his house once has flatly expressed its opposition to it.

Th ripper bill would despoil and destroy the state board of health for political purposes. That would seem almost the depth of ignominy. But the method by which it is being attempted to drive this bill through the house of representatives against the true sentiment of the majority of the members, is destructive of the board of health and contaminates all other branches of the state government.

The rules of the house of representatives must be scuttled.

Those who claim to speak for the governor are stopping at nothing in threats and promises in their attempts to force this measure through the house. He can not be defended on the ground that he does not know what they are doing for if he did not approve he would drive them from the legislative halls and from the executive offices.

His appointments, that under the law must be submitted to the senate for confirmation, have been long delayed. The matter has been called to his attention repeatedly.

His tardiness in naming members of the important commissions in time for confirmation gives credence to the charges that the appointments to these positions of public trust are being held up as a means to enforce his pudpose in this bill.

Is the ripping not to stop with the board of health? Is the massacre to be wholesale? Is the house of representatives to be forced to forsake its expressed stand and to reverse its position? Is the governor's office to suffer from the shaken confidence of the public? Is the senate to be insulted? Are the highway, tax and charities and corrections commissions to be turned over to the beneficiaries and skilled workmen of practical politics, as the board of health will be if this measure passes?

No one knows how far this colossal blundering and destruction will go. It has gone too far already and the end is not in sight unless the governor comes to his senses or enough stalwart Kentuckians stand their ground to prevent the catastrophe that is being deliberately planned.

THE LINE OF FUTURE CLEVAGE

(Wednesday, March 14, 1928)

The paramount question of American life today is whether politial corruption shall accomplish its purpose and rule unrebuked and unpunished. Under President Harding arrangements were made that led to the indescribable corruption of the oil deals, full details of which have not yet been revealed to the public. The trail of the serpent went through the cabinet of the

President to the very door of the White House.

The question is just as vital in the state as it is in the nation. There is a situation at Frankfort that threatens the political life of Kentucky, as the corruption that reached its head like a boil in the oil scandals imperils the political life of the nation.

No man ever assumed the duties and donned the mantle of governor with greater opportunity to win for himself high reputation and serve well his state than Governor Sampson. In the full flush of stalwart manhood, of proven capacity,—adroit, able, vigorous,—with the intelligence of the state awakened to the tremendous possibilities of industrial, commercial and agricultural development, he had, and still has at the time this is written, the chance to become the leader of Kentucky.

But due either to an overwhelming and mistaken ambition .or to bad advice, today he stands at the edge of a precipice and before these lines are published may have fallen into a chasm from which no human power can rescue him.

Not for the purpose of serving the citizens of the state, not for the purpose of safeguarding the health of the state, but to gain control of an agency of the state to use it for political purposes, an alliance has been formed between the governor and some Democrats to destroy the board of health as presently constituted and in its place substitute a board that may be used for the political aggrandizement of those who are responsible for its construction.

In the thirty years during which we have been familiar with conditions at Frankfort we have never known a more ruthless combination. If it succeeds neither the governor nor the Democrats who have joined with the governor can hope to escape responsibility and condemnation. Every appointment made by the governor will be scrutinized by the state to ascertain the relation the appointment bears to the deals that have been made to secure the enactment of the legislation. Many of the promises that have been made cannot be kept, but every one that has been made and is kept will be accepted by the state as additional proof of the barter and sale that has been the basis for the coalition in Frankfort.

Some Democrats who have assumed to speak for and misrepresent the Democratic party are endeavoring to give the Republican governor a machine that will quickly incur the overwhelming condemnation of the state. It is as certain as the rising sun that any such bill as the Ripper Bill, if enacted, will within two sessions of the legislature be repealed. And for that brief span of power the framers of the legislation are sacrificing not only their own reputation, but making certain that the line of clevage in Kentucky will be along the lines of political honesty or political barter and sale.

SAVED!

(Thursday, March 15, 1928)

The Herald congratulates the state of Kentucky upon the fact that the activities of the board of health, developed over half a century, are not to be disturbed.

It congratulates those who appeared as sponsors for the ripper bill, whose dangers they did not seem to appreciate, upon being relieved from a grievous blunder that would have reacted more surely against those who pressed this measure than against those at whom it was aimed.

It congratulates those courageous and conscientious legislators who stood their ground and said, "This thing must not be done."

And it congratulates the members of the general assembly upon the fact that when the session closes they can go back home without the responsibility for this act upon their shoulders.

It congratulates the governor upon being freed from a situation that would have wrecked his administration at the threshold of its opportunity for service.

It is indeed a day upon which those who look forward to a better state may take new courage and find firmer cause for faith.

BOOK REVIEWS

CANCER CONTROL. Report of an International Symposium Held Under the Auspices of the American Society for the Control of Cancer. Lake Mohonk, New York, U. S. A., Septemeber 20-24, 1926. The Surgical Publishing Company of Chicago.

THE SURGICAL CLINICS OF NORTH AMERICA (issued serially one number every other month.) Volume 7, number 3 (Chicago Number—June 1927.) 330 pages with 81 illustrations. Per clinic year (February 1927 to December 1927.) Paper, $12.00; Cloth, $16.00 net. Philadelphia and London: W. B. Saunders Company.

COLLECTED PAPERS OF THE MAYO CLINIC AND MAYO FOUNDATION. By William J. Mayo, M. D., Charles H. Mayo, M. D., and their Associates at the Mayo Clinic, Rochester, Minn., and The Mayo Foundation, University of Minnesota. Octavo of 14000 pages, with 250 illustrations. Volume xviii. 1926.

Every year this volume sells out of print, notwithstanding larger editions are printed year after year. The work makes available to the medical profession the original research work, the improved and new diagnostic methods, the refinements of technic being successfully employed at this clinic.

This year's volume contains many contributions that are particularly valuable to the gneral practitioner, as well as to the surgeon. For instance: Peptic ulcer, anacidity, hypo-acidty, malignancy, jaundice, biliary calculi, liver function tests, mercurochrome, prostatectomy, colitis, lipiodol in gynecology, goiter work, diabetes and insulin (7 articles), blood diseases and blood tests, heart disease, Kahn precipitation test. Kolmer complement-fixation test, neurosyphilis, malarial therapy, bone surgery, eye, ear, nose and throat work bronchoscopy, surgery of the chest, brain and cord surgery, the cancer problem, radiotherapy, roentgenotherapy. estimation of urea in blood, technic of blood-cell count, Mayo operation for cyctocele, plastic surgery, carbon monoxid and cancer, oral sepsis and focal infection.

THE ANATOMY OF THE NERVOUS SYSTEM—from the standpoint of development and function. By Stephen W. Ranson, M. D., Ph. D., Professor of Neuroanatomy, Washington University, Medical School, St. Louis, Mo. Third Edition, Revised. Octavo volume of 425 pages with 284 illustrations, some of them in colors. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $6.50 net.

In this volume the anatomy of the nervous system has been presented from the dynamic rather than the static point of view; that is to say, emphasis has been laid on the developmental and functional significance of structure. The student is led at the very beginning of his neurologic studies to think of the nervous system in it relation to the rest of the living organism. Structural details, which when considered by themselves are dull and tiresome, become interesting when their functional significance is made obvious. This method of presentation makes more easy the correlation of the various neurologic courses in the medical curriculum. For physiologic and clinical neurology a knowledge of conduction pathway and functional localization is essential, and this information can best be acquired in connection with the course in anatomic neurology. In selecting the material to be included in this book the needs of the medical student have been kept constantly in mind, and emphasis has been placed on those phases of the subject which the student is most likely to find of value to him in his subsequent work.

SURGICAL DISEASES OF THE GALL-BLADDER, LIVER AND PANCREAS AND THEIR TREATMENT. By Moses Behrend, A. M., M. D., F. A. C. S. Attending Surgeon to the Jewish and Mt. Sinai and Northern Liberties Hospitals; Consulting Surgeon to the Hebrew Orphans Home the Jewish Maternity Hospital, and Jewish Seaside Home, Atlantic City: Instuctor in Anatomy in the Jefferson Medical College.

With numerous illustrations, some in colors, including many full page pltes. F. A. Davis Company Publishers, Philadelphia.

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COLLECTED PAPER OF THE MAYO CLINIC AND MAYO FOUNDATION. Volume xvii. 1927. Published May, 1927. W. B. Saunders Company. Philadelphia and London, Publishers.

As in the previous volumes of Collected Papers, the material for this volume has been selected to suit the needs of the general surgeon and general physician. Papers of partial or entire interest to the specialist in more limited fields have been abbreviated, or inserted by title only. In this way, although all the material originally published is made available to the reader directly or indirectly, it has been possible to gather the substance of several thousand pages into the limits of one volume.

The whole range of even the major subjects in medicine has not been and could not be covered by any group of writers in one year, but it is hoped that with the voluminous references to other writers, this volume will serve as a reflection of the progress of medical science during the year 1925.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Lyon: Death again has visited the Lyon County Medical Society and we have lost Dr. C. H. Linn. Therefore be it

Resolved: That the Kentucky State Medical Society, the Southwestern Kentucky Medical Society and the Lyon County Medical Society have all lost a worthy and honorable member, for he was an able and competent physician and always labored for the promotion of medical science and the good of the people.

The Presbyterian Church has lost a worthy, dependable and consistant member.

The Board of U. S. Pension Examiners has lost a useful and worthy member, for he was always fair and just, both to the Pensioner and the Government.

The people have lost a learned and competent physician, a wise counselor and true friend and the vacancy caused by his death will be difficult to fill.

His family has lost a kind and loving husband and father.

Dr. Linn was widely known and his many friends far and near are mourning the loss of a true and noble citizen who always used his influence for what he thought was right.

Resolved, that a copy of these resolutions be sent to the Lyon County Herald, the Kentucky Medical Journal and the bereaved family of the deaceased.

Lyon County Medical Society.
W. B. Kinsolving,
D. F. Harris,
H. H. Woodson,
T. J. Phillips.

Hardin: The Hardin County Medical Society met on February 9, with the following members present: J. S. Dean, president; J. M. English, J. C. Mobley, J. C. Hale, H. R. Nusz, J. F. Glasscock, R. T. Layman, C. C. Carroll, C. W. Rogers and D. E. McClure.

The minutes of the January meeting were read and approved. The regular routine of business, including the report of clinical cases, was transacted.

A resolution indorsing the "Sterilization Bill" pending before the Legislature was adopted. A second resolution disapproving the bill to reorganize the State Board of Health was adopted.

The Hardin ounty Medical Society is thriving and functioning.

D. E. McCLURE, Secretary.

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Being the Journal of the Kentucky State Medical Association
Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets.
Subscription Price, $5.00
Single Copy, 50 cents
Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

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New—McLester on Diet

This work is absolutely different from any other book on diet. It has been written entirely and always from the viewpoint of the general physician. It makes the writing of a dietary prescription as easy and as simple as that of a drug—and as effective.

First it considers Diet in Health and Nutritional Requirements. This includes sections on diet for school children. There is also an important chapter on diet and reproduction with menus during pregnancy and lactation. The chapter on the feeding of infants has been contributed by Dr. McKim Marriott and includes the latest lactic-acid milk feeding. There is a section of 85 pages on metabolism, giving the Harris and Benedict basal metabolic tables, Locke's food value and alcoholic beverages tables, and Fischer's standard portions tables.

The complete work of Murphy and Minot on liver feeding in pernicious anemia is given, with detailed menus and exact methods of preparing the liver. There is a 50-page section on diabetes in adults and children, which includes the latest treatment with diet alone and with insulin and diet. There are hundreds of diet lists, covering various diseases and a chapter by Dr. Barney Brooks on feeding the surgical patient.

Nutrition and Diet in Health and Disease. By JAMES S. MCLESTER, M. D., Professor of Medicine at the University of Alabama. Octavo of 783 pages. Cloth $8.00 net.

W. B. SAUNDERS COMPANY Philadelphia and London

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., MAY 1928 No. 5

EDITORIAL

YOUR BUSINESS

The affairs of the Kentucky State Medical Association are your business. Unless your dues have been paid to your county secretary this is the last issue of the JOURNAL which will reach you until they are paid. It is difficult to understand why it is necessary to say this each year to doctors who are members of all sorts of fraternal organizations, who carry insurance policies, who pay taxes and who know that the law requires corporations to conduct themselves so they are able to make definite reports of income along business lines.

Thoroughly conversant with the management of other State Medical associations we know that ours is conducted on an effective basis. No other association gets the same amount of service for as little cost. The publication of the JOURNAL alone costs more than each member pays. Of course, our advertisers make up the difference. Last year our Medico-Legal affairs cost half of the income from the membership. We trust this was an unusual year but we feel sure that the members who received the benefits from the excellent work of the Medico-Legal Committee are not disposed to be critical of this splendid work. Suits have been brought against some of the very best men in the State. Practically every one of them has been entirely without justification but the defense of a malpractice suit, however unjust to an individual, rarely costs him less than $1,000, while the Association, through the splendid management of Mr. Forcht, has managed these cases for an average of a fourth of this amount. It is a curious commentary on our court system that the the cases which have been decided adversely have been among the least meritorious, as a matter of fact.

The profession needs to maintain its organization on a highly effective basis now as never before. It needs the really thoughtful consideration of all of its members in helping to solve the tremendous problems that confront it.

If you have not already done so, will you not mail your dues to your county secretary as soon as you finish reading this?

ON TO MINNEAPOLIS

So many inquiries have been received regarding the meeting of the American Medical Association, we have decided to adopt two official routes: the Chicago Great Western and the Chicago Northwestern.

Both roads have advertisements in the Journal and both have agreed to send to the physicians of the State, a folder giving a complete description including the rates, time of departure and the added attractions of their special routes. Dr. L. H. South, Louisville, has been appointed Chairman of the Transportation Committee and will furnish any additional information desired.

The unusual opportunity to visit the Mayo Clinic without additional cost and the Clinics in Chicago, should appeal to every physician in the State.

BACILLUS ACIDOPHILUS THERAPY

The B. acidophilus therapy is not new. Its value has been demonstrated by researches extending over a period of ten years.

The principal claim of B. acidophilus to distinction amongst the others known aciduric microbes lies in its ability to live within the human bowels and exert a most profound influence upon the character of the intestinal flora. It is now well recognized that B. acidophilus, present in large numbers in the intestinal tract of healthy infants, confers protection upon the young against the invasion of putrefactive bacterial types and disorders arising from the absorption of their toxins.

The intestinal flora of older children and adults consists largely of proteolytic, toxin-producing bacteria. These microbes cause the ingested food to undergo rapid putrefaction with the elaboration of various substances toxic to the host. The clinical effects from the absorption of these pernicious by-products are so generally known to the profession as to require no further comment.

The literature on this subject reveals that B. acidophilus is antagonistic to and incompatible with putrefactive and fermentative bacteria and that its maintenance within the large intestine, where the microbic cesspool is most active, is of great clinical importance.

The establishment of an acidophilus flora, akin to that of the normal infant, by means of viable acidophilus cultures, is the chief function of the B. acidophilus therapy—a treatment which has a sound, logical, and scientific foundation.

As with any therapeutic agent, one must have a comprehensive knowledge of the proper execution of the therapy in question. To bring about the desired radical changes in the intestinal flora, followed by regulation of bowel movements and relief from coexisting toxic symptoms, mass inoculation (that is, feeding a relatively large number of viable acidophilus organisms) is required. It is in this connection that Mulford Acidophilus Blocks, by providing mass cultures, fully meet the fundamental requirements of this mode of bacteriotherapy. Moreover, the Acidophilus Blocks offer to the clinician an effective therapeutic agent in a form widely acceptable to all patients, thus insuring their full cooperation during the entire course of treatment.

Clinical experience has shown that the acidophilus treatment should continue daily for at least six to twelve weeks. For obstinate and chronic cases of constipation, colitis, dysentery and intestinal toxemias of long standing, the treatment may require a longer period of time. In other words, the B. acidophilus therapy involves a course of treatment running over a period of time of greater or less duration, depending upon the clinical history of the patient.

The recommended dosage is from three to four Blocks per day. This dosage provides an extra factor of safety in insuring a complete implantation of B. acidophilus. The patient should consume, on the average, two boxes of M. A. B. per week.

These blocks are merchandized with an expiration date of six weeks. When properly kept at refrigerator temperature, they remain clinically active within the date stamped on the package. One should insist on securing fresh supplies of these blocks from the prescription druggist or through him direct from the Mulford Laboratories.

Glycosuria, Diabetes Mellitus and Pregnancy.—The glycosuria which is a temporary phenomenon in about 10 per cent of pregnant women must not be confused with diabetes. Smith reports a case of grave diabetes in which the patient passed safely through a first pregnancy and was delivered spontaneously one month before term. The puerperium was undisturbed. Nearly two years later, at the time of writing, the patient was in the sixth month of a second pregnancy, and was standing it well.

OFFICIAL ANNOUNCEMENTS

REPORT OF THE BUREAU OF DENTAL HEALTH OF THE STATE BOARD OF HEALTH, YEAR ENDING APRIL THIRD, 1928.

The paramount purpose of Dental Health activity is the education of the children of Kentucky in the value of dental health and cleanliness so that there might be a decrease in the diseases that originate in the oral cavity thereby lessening suffering and preventing financial losses due to illness. Dr. Charles Mayo, of Rochester, Minn., says that 80% of children's disease arise in the mouth, nose and throat.

Preventive dentistry and dental health has come to us, not through any particular persons of rare or unusual intelligence, but as a slow and natural development that was encouraged by the need of the human race. Its growth, up until this age of swiftly maturing ideas, has been slow, but it has been given impetus by the dire need to know the relation of the oral cavity to health.

It has taken years to learn how to outwit disease. It has taken ages to bring us to the age of preventing them rather than curing them, which is now an established science. This science of prevention means that you, as an individual, must know how to prevent diseases from creeping into your body, and the education in how to do this that formerly belonged to the privileged few, is today for the people.

Every child born should have an equal chance for physical and mental health. Since such a large per cent of children's diseases originate in the mouth, nose and throat, there should certainly be instructions in preventive measures to keep the oral cavity clean. Practically every dental disorder is preventable and decayed teeth constitute the most prevalent disease known. Mouth hygiene is a powerful aid in the restriction of communicable and infectious diseases of childhood.

The child begins to cut his permanent teeth at the age of 5 and 6 years. These teeth have been forming ever since the child was born, so we cannot start too early to educate the child and the parent in proper care, diet and cleanliness, if we are to form permanent health habits in the child.

It is generally conceded that most pupils that are retarded in their grades, are retarded as the direct result of illness. If most children's diseases originate in the mouth, nose and throat, prevention should begin with the oral cavity. The general average of retarded pupils is 40%, and the cost of education in grammar grades is from $25 to $40 per year. This alone should startle the public to activity.

By education and regular instruction our children will learn how to eat for health, the foods that develop the teeth, the foods that aid in cleaning them, and the diet necessary for healthy bodies. They should be instructed on care of the teeth, the proper method of cleansing, and the value of sound teeth and clean mouths to general good health. When the child understands that permanent teeth must not be allowed to decay any more than they would permit an infection to attack their fingers or toes, for like any other permanent member of the body, it will not grow again, or replace itself. The time has passed when the mental development of the child in school constitutes the whole of his education. His physical welfare is also to be considered if he is able, mentally.

As Disraeli once said, "Public Health is the foundation upon which rests the happiness of the people and the welfare of the State." With this idea in mind the foundation for dental health education has been laid. It is impossible to measure the extent of the work, or count its value to the community, but the following report gives some idea of the number we have touched directly.

Number receiving dental examination in schools	120,205
Number teaching bulletins sent out, 8 lessons for school term	17,200
Number educational pamphlets distributed	563,120
Number of lectures and health talks given	593
Number seeing motion picture, dental health film	81,942
Number of free clinics	63
Number of personal letters written	3,163
Number of toothbrushes distributed	5,120

Educational letters were sent to the following:

To physicians	6,380
To graduate nurses	3,131
To dentists	9,212
To school heads	8,491
To health units	1,240

The permanence of this work has been definitely established by the Kentucky State Board of Health who included, and was allowed, in their regular budget, $10,000.00 for the continuation of this work. This will assure permanent dental health education.

R. P. KEENE,
State Director.

ORIGINAL ARTICLES

POLIOMYELITIS.*

By W. E. Gardner, M. D., Louisville.

When your program committee did me the honor, a few weeks ago, to request that I present to this society a paper upon Poliomyelitis, I was confident that they did not expect that I would offer anything startling upon this most important subject, but that I might, at least, call attention to some of the more salient points of a disease which has occupied the attention of the medical profession of Kentucky to no little extent during the past few months, as it has from time to time, for a period of years, especially since the notable epidemics of this disease in the states of New York and Massachusetts in the years 1907 to 1916.

Since those dates there have been a number of recrudescences of this malady in one state or another amounting to the equivalent of an epidemic, especially during the year 1924, and at this time there have been reported for the year 1927 a sufficient number of cases in this state and other states to cause considerable alarm as to whether or not we may not now be confronted by a general epidemic of the disease which may not fully spend its force until the latter months of the coming winter or in the early spring.

Time would not permit, nor would it be desirable, that I should, at this time, attempt to write an exhaustive paper upon this subject which has so many ramifications and interesting phases, however, that it is not an easy task to decide in just what way the matter should be best presented in a brief paper, and yet sufficiently comprehensive to provoke general discussion by many members of this society, who have had even a greater experience with this disease than has the writer himself, and who will, no doubt, be able to elaborate the subject to such an extent that we may all be better informed at the close of the discussion than we were in the beginning, and at least have our memories refreshed concerning many of the points upon which we all agree if nothing actually new be added.

With the large amount of research work that has been done in regard to the etiology of the disease, and the volumes that have been published in the various Medical Journals f the country, it is well that we should occasionally take stock of what we really know about such an important disease, and try, if possible, to keep ourselves well oriented and not be led helter skelter regarding etiology, and especially treatment, until much more has been learned regarding the actual cause of this disorder.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

While we are, personally, inclined to believe that the disease is due to a non-filtrable virus, or to a special neurotropic strain of streptococcus, as has been held by Rosenow and others, and that there is possibly an etiological relationship between this disease and that of encephalitis lethargicia, withal having very marked differences in their clinical manifestations, yet none of these points have been sufficiently proven to justify the conclusion that we really have any scientific knowledge regarding the etiology of the disease, and we should keep this point well in mind when the question of treatment arises, especially if a serum is to be considered.

What we do know regarding the etiology of poliomyelitis, (and this information has been gained from clinical observation and study) is that the disease is essentially one of childhood and affects males and females in about equal numbers. That while the disease may occur in adults, in the New York epidemic of 1916 eighty-three per cent of cases were under five years of age, and ninety per cent under ten years of age.

Clinical experience has demonstrated also that the disease is contagious and probably infectious to a moderate degree, although regarding the latter it is significant that in the New York epidemic of 1916 of over eight thousand families affected only four per cent contributed more than one well defined case. Some allowance may have to be made, however, on account of the possibility of abortive cases which occur during every epidemic, and which are frequently overlooked.

Regarding the seasonal prevalence of the disease, we refer to an article in the American Journal of Hygiene of July 1924 by W. L. Aycock and P. Eaton who studied the seasonal prevalence of infantile paralysis in the United States over a period of eleven years. 1912 to 1922, inclusive. There was a marked regularity in the summer prevalence of the disease. The wave usually reaches its height in September and does not terminate until the following January or February; immediately following this there is a decided increase during March and April, which is in turn followed in May by another low point. The lowest monthly incidence recorded within the eleven years was in the month of May. A definite increased spring prevalence was found to have occurred one hundred and eighty-nine times in three hundred and forty three annual tabulations covering forty-three state. This spring increase was reported as frequently in northern as in southern states. Therefore, there is undoubtedly some factor in the dissemination of the disease which is associated with the seasonal conditions of the summer months. But a definite tendency for the disease to increase when the conditions are the reverse of these which influence summer prevalence can hardly be attributed to the same factor. The explanation which at once suggests itself is that there are two distinct modes of spread, the one operating in the summer and the other in the winter and spring.

The statistics of Aycock and Eaton would indicate that there is a bi-seasonal prevalence of the disease, and that we are yet, at this season in October, not beyond the point where other new cases may develop. In fact there has not been a year within the past decade but that there have been sporadic cases of infantile paralysis developing in one state or another, and at all seasons of the year, so we may be on the lookout for isolated cases of the disease at most any time, and just what are all the factors that enter into the production of an epidemic at any given time and place we do not yet know. It does appear, however, that as the virus, or infecting agent, passes from one host to another, it has a tendency to increase in virulency until a certain degree of toxicity is produced, and then there is a gradual weakening or attenuation of the same until it disappears or dies. The virus is said to be resistant to chemicals, cold, and moderate degrees of heat, and that its avenue of ingress and egress in man is through the upper respiratory tract. W. P. Lucas and others have shown that it may remain there for months and years, a danger to others even though the carrier himself escapes. As far as we know now, those who are affected, the abortive cases and the carriers are the only agents in spreading the disease.

We shall not attempt here to discuss the pathology of acute anterior polimyelitis, which is more or less well known to the medical profession, and which is indicated by the name of the disease itself implying that there is an acute inflammatory and in most instances, a degenerative process in the anterior horns of the spinal cord in the spinal types of the disease, and in the gray matter of the medulla and brain stem in the superior types, sometimes referred to as polio-encephalitis.

There is a wide variation in the symptomatology of the disease in each epidemic, and in discussing this phase of the subject, we shall endeavor to give what may be considered an average comprehensive account of those symptoms which may be encountered in any epidemic, but in doing so will follow more or less closely those symptoms which prevailed during the epidemics of 1916 and 1924, and which have been reported rather exhaustively by H. B. Sheffield in the Medical Journal and Record of April 2, 1924, especially a study of cases of the 1924 epidemic which came under his observation as consultant at that time, and in which the spinal types of the disease prevailed. In the 1916 epidemic the majority of the cases were of the cerebral type.

Physical examination usually reveals diffuse congestion of the throat, with or without a slight grayish deposit upon the tonsils, a slight rigidity of the neck, chiefly on bending the head forward. Other characteristics are marked paraesthesia, muscular tremor, or jerking, distinct drowsiness or stupor, especially in the cerebral cases, and irritability when disturbed. The mind is usually clear, even in severe cases. The heart's action is generally exaggerated, even with a low temperature.

These symptoms may remain stationary for from one to three days, or even much longer in some instances, and then either show a tendency toward spontaneous abatement, as in the abortive types, or get rapidly worse, heralding the advent of paralysis. This cardinal symptom of paralysis is often preceded by progressive muscular weakness, and may remain localized or spread rapidly to other parts of the body, the degree of severity and extent of paralysis depending upon the gravity and seat of the lesion.

In the majority of instances, especially during mild epidemics, the pathological process is limited to the spinal cord. In such an event the paralysis usually involves the extremities only, or less frequently the neck, abdomen, or chest as well. The paralysis may be partial or total. The extremities are usually affected in the following order of frequency: one leg, both legs, one arm, both legs and both arms, both arms and one leg. Occasionally the paralysis remains limited to a group of muscles, or even a single muscle; for example, the tibialis anticus, the gastrocnemius, or deltoid, and is not infrequently overlooked until atrophy has set in.

When the muscles of the neck are implicated, the child is unable to hold the head erect, the head falls forward or backwards, or sways from side to side. In paralysis of the abdominal muscles, owing to active intra-abdominal pressure by gases, ballooning of the affected muscles is soon noted, which contrasts sharply with the flatness of the muscles that are intact. With involvement of the spinal muscles, the patient is either totally unable to turn around, or to move from side to side while flat on his back, or shows a peculiar clumsiness in doing so. The same holds true when attempting to assume a sitting posture without assistance. Such a paralysis is often overlooked until frank scoliosis has made its appearance.

When the lesions are limited to the lower motor neuron, which is the rule in this disease, the paralysis is flaccid in character, the tendon reflexes are greatly diminished or lost, and the reaction to the faradic current disappears. The reaction to the galvanic current, however, may persist for some time longer. Sensation is but slightly, if at all, impaired. In a small percentage of cases, the paralysis, beginning in the lower extremities, gradually spreads upward, resembling Landry's paralysis, and involves the upper extremities, the external muscles of respiration and the diaphragm, if the lesion reaches the upper segments of the cervical cord. Such cases often have a fatal termination as the result of respiratory failure. In another group of patients, the paralysis may start in the arms and gradually spread downward to the lower extremities. In still another group of cases, the inflammatory process involves the medulla and we have what is known as the bulbo-spinal type of the disease. The lesion here is frequently unilateral and characterized by involvement of some of the cranial nerves, in addition to the manifestations observed in the purely spinal variety of poliomyelitis. As a rule, the facial and abducens nerves are affected; less frequently the glosso-pharyngeal and vagus; and more rarely still, the hypoglossal nerve, in which event the patient presents not only facial paralysis, inward strabismus, and more or less respiratory difficulties, but also disturbances of phonation and deglutition. These cases are usually very grave, and frequently fatal. When the cord remains free and the medulla alone is involved, the tendon reflexes are generally exaggerated, the limbs more or less rigid, and the gait ataxic in character. It is not at all uncommon, especially in infants in whom the other symptoms are not easily made out, for facial paralysis to form the principal symptom of the affection, and in the absence of an epidemic to be looked upon as a peripheral facial paralysis, or Bell's palsy. The diagnosis, however, can usually be established by bearing in mind the fact that in nuclear paralysis the palsy is limited to the lower half of the face, the upper portion of the nerve receiving intercommunication fibers from the facial nerve of the opposite side.

Quite frequently in severe epidemics a group of symptoms of poliomyelitis is encountered which greatly resemble those of initial meningitis or encephalitis, such as recurrent projectile vomiting, convulsions, marked rigidity of the neck, and profound stupor. Such cases are usually classified as polio-encephalitis, and in most instances, on account of the increased intra-cranial pressure, will after one or two days, show a partial or complete spastic paralysis of one or more extremities, not infrequently accompanied by involvement of the facial and other cranial nerves. Then tendon reflexes are greatly exaggerated, and if the lower extremities are involved, ankle clonus and a positive Babinski sign can usually be demonstrated. An examination of the eye grounds in this class of cases will sometimes reveal the presence of an optic neuritis or a papilloedema. If the patient survives such an attack, he may be invalided the balance of his life on account of contracture deformities of the affected extremities, athetosis, occasional epileptiform convulsions or feeble-mindedness.

Of all the acute symptoms of poliomyelitis that have been enumerated none are of very long duration, and with absorption of the excessive exudate in the spine and brain and the resulting reduction of pressure upon vital structures there is a spontaneous tendency on the part of the nerves and muscles to regain their functions. The fever and pain begin to subside, and the spread of the paralysis is arrested. The degree and extent of the initial paralysis form no criterion as to the final outcome of the disease as a whole. Many children who were seemingly in a hopeless condition have been known to recover almost completely, and on the other hand, mild localized paralyses have persisted for life under the very best methods of treatment. The muscles that fail to recover in about three weeks after the onset of the paralysis will usually begin to show signs of atrophy. The response of the nerve to the faradic current is soon lost, but the galvanic response of the muscle may persist for a number of months, and until an advanced atrophy has taken place.

Typical spinal poliomyelitis with sudden flaccid paralysis, especially when occurring during the presence of an epidemic, is readily diagnosed even by the inexperienced observer. When, however, the case appears isolated, and pain, for example, forms the chief complaint, poliomyelitis in the initial stage, may be mistaken for scurvy, rheumatism or multiple neuritis. Considerable difficulty is experienced also in distinguishing poliomyelitis from post-diphtheritic paralysis in which the neck and trunk are involved. In such instances, attention should be directed particularly to the presence of paralysis of the soft palate, loss of accommodation of the eyes and strabismus which are relatively common in post diphtheritic paralysis. A throat culture will make the diagnosis in most instances. Sporadic cases of encephalitic types of poliomyelitis are frequently mistaken for encephalitis lethargica or meningitis. On closer observation it will be noted, however, that in meningitis eye symptoms, Kernig's and Brudzinski's signs appear early and the stupor is much more pronounced, while in poliomyelitis paralysis appears earlier and is more marked than that of meningitis. In lethargic encephalitis, stupor and mask like facies and diplopia appear early and are characteristic, while paralysis of the extremities is comparatively rare, and if present is usually spastic.

Some diagnostic aid may be obtained from an examination of the spinal fluid. The latter taken during the early stage of the disease, and especially before the onset of paralysis, shows an increased cell count, (sometimes as high as 100 to 500 cells per cu. mm.) with a low or normal globulin content. The lymphocytes predominate. After the first two weeks, the cell count usually drops to normal and the globulin content is increased. The sugar content is usually higher than normal, as in lethargic encephalitis, in this respect differing from the fluid of tuberculous meningitis, in which the sugar content is usually lower than normal. In connection with the foregoing information the finding of a leucocytosis of from 15,000 to 30,000, with an increase of the polymorphonuclears is corroborative of the diagnosis of poliomyelitis. With the establishment of the diagnosis, our chief concern must be directed to the prevention of the spread of the infection to other children and to the possible arrest of the disease in the patient before irreparable damage has been inflicted. We have not been very successful in either attempt, thus far, since unfortunately all efforts to isolate the infective agent of infantile paralysis and to produce an efficient antitoxin against it have proved futile, with due deference to the claims of several clinicians to the contrary.

Convalescent human serum, to be obtained only under great difficulties, except during a large epidemic of infantile paralysis, can hardly be utilized and depended upon as a therapeutic or preventive agent. Rosenow and Nuzum, working independently, have each produced an immunized horse serum using a definite organism which they believe to be the cause of poliomyelitis. Some confusion still exists among competent observers as to the relative value of human convalescent serum, on the one hand, and the horse serum of Rosenow and the horse serum of Nuzum, on the other. During the Omaha epidemic of 1923 Floyd Clarke and Andrew G. Dow reported the use of Rosenow's serum in all of their seventeen cases. The patients received one or more injections of the serum. They were able to see all of their cases soon after onset, making an early diagnosis possible, and they reported complete recovery without paralysis in all of their cases. Such a report would seem a strong argument in favor of the use of Rosenow's serum, if given early in the disease, and yet when one considers the peculiar manifestations of infantile paralysis, and the number of so-called abortive cases that occur, it is not surprising that some confusion and a great deal of doubt still exists as to the value of any treatment.

Under these circumstances there is nothing left, in the hands of most of us, but to employ general prophylaxis and symptomatic treatment. In the first place, the patient should be isolated for about three weeks. All discharges from the mouth, nose and throat should be received on cloths or toilet paper and immediately burned. The feces and urine should be disinfected before their disposal. The sick room should be screened to keep out flies, mosquitoes and other insects. All those known to have come in direct contact with the patients should, for a couple of weeks, be carefully watched for suspicious signs of poliomyelitis. During this period, the children should, of course, be kept from school. Some have advocated the use of a two per cent solution of hydrogen dioxide in cleansing the nose and throat, twice daily, as a means of arresting the activity of the virus of this disease. The internal use of hexamethylenamin in doses of five grains three times daily has been recommended as a method of treatment as it is said to find its way into the cerebrospinal fluid and exerts a mild germicidal effect. We have always doubted the value of this drug in such cases, just as we have in its use in lethargic encephalitis, and yet we invariably use it as a matter of routine, feeling sure that it can do no harm.

The active treatment of poliomyelitis during the acute stage consists principally of absolute rest of body and mind, and the relief of complicating symptoms as they arise. The patient should be kept in bed in recumbent posture, for about two weeks or longer if acute symptoms are still present. The use of the salicylates has been advocated in the treatment of this disease for a number of years, and seems to have been of value, especially in the relief of pain during the early stages of the disease, and their use may readily be combined with that of hexymethylenamin for a period of one or two weeks. Warm baths are also of benefit both as a nerve sedative and a diaphoretic, but in cases of extreme restlessness the use of the bromides with very small doses of codein may sometimes have to be employed to preserve the strength of the patient.

Lumbar puncture is a valuable remedy if there are symptoms of increased intracranial pressure, especially convulsions. It may be employed as often as once or twice a day in extreme cases, but in the average case without cerebral symptoms. I would not advise its use except for diagnostic purposes, inasmuch as it is more or less painful to the child and certainly does excite one very greatly, if not in a stuperous state.

It is important to immobilize the parts affected as soon as a partial recovery of the muscles becomes manifest, in order to prevent early muscular contractures and deformities. Well padded wire splints for the extremities and a Bradford frame for the spine answers the purpose very well in most instances. The feet should be supported at right angles to the legs. These suggestions, of course, apply only to the treatment of the acute case, and if paralysis becomes defintely established then the selection of suitable braces should be left to the good judgment of a competent orthopedic surgeon.

Early atrophy and deformities may, to some extent, be prevented by improving the impoverished circulation in the affected structures by means of heat, massage, vibration and electricity. Such treatment should not be employed, however, until the pain and tenderness have entirely subsided. The massage should be gentle, and applied preferably by an experienced masseur. Vibratory stimulation may be employed later. Heat is always indicated in these cases, and the patient should be warmly dressed. The affected limbs should be exposed, if possible, daily for ten minutes at a time to dry heat obtained from a large electric bulb or the numerous violet ray or baking apparatuses that are now upon the market. The benefit derived from the use of electric currents has been greatly exaggerated, yet a mild galvanic current applied daily for five or ten minutes may help to hasten muscular recovery, by improving the nutrition, and even the use of a mild faradic current may be employed to promote the conduction of nerve impulses.

The patient should be placed in an upright position as soon as the acute stage has subsided, and the proper braces have been applied; and muscle training should then be begun. Active and passive motion should be employed corresponding to the normal muscular action, and the best results can be obtained if these exercises are directed by one thoroughly familiar with the normal and abnormal powers of each muscle or group of muscles. This muscle training can often best be begun by placing the child in a warm bath, and since attention and cooperation on the part of the patient are essential to its accomplishment, it is obvious that these exercises can be applied only in children over three or four years of age. Ample nutrition and general reconstructive tonics, such as strychnia, the syrup of iodine of iron, the hypophosphites and cod liver oil are excellent adjuvants in the reestablishment of the depleted bodily functions.

After the employment of all these measures for a year or more without any apparent benefit to the patient, and there begins to appear a tendency of the deformities to become fixed, there is nothing left but to proceed to correct the deformities by operative measures. The decision as to just how soon this should be done should be left to the judgment of the individual surgeon, and it should be borne in mind that the success of the operative procedure often depends solely upon the skill of the surgeon. Hence, the importance of selecting one thoroughly familiar with this special form of surgery, for even in the best of hands, the results are not always what might have been hoped for. This is true especially of cases that have been greatly neglected or treated by the numerous quacks and fanatics who are forever on the alert to take advantage of the ignorance of the people at a time when their distress and fear are greatest.

DISCUSSION.

Floyd Allen, Lexington: Kentucky is just now passing through the worst epidemic of poliomyelitis that it has ever experienced. We are in hopes that the epidemic is subsiding at this time. All indications point to that end.

As Dr. Gardner has pointed out, there is a great deal of uncertainty as to the etiology of this disease and a certain amount of uncertainty as to its spread. I thought it would be of interest to the members of the Society to present the epidemiology of poliomyelitis since its beginning in Kentucky.

This first map shows the situation prior to the first of July of this year. The first cases in any center of poliomyelitis occurred in the north half of Rockcastle County. On June 29 the first case in the second center to be involved occurred in Scott County.

These maps show you the progress of the epidemic at intervals of two weeks. The next interval, then, is shown between July 1 and 15. The epidemic had then gained considerable headway in the first center, involving the northern half of Rockcastle County and the southern half of Madison County. It had also gained considerable headway in the second center, Scott County. At this juncture I should like to call your attention to the counties traversed by the Dixie Highway.

During the last half of July we find the epidemic still active in the first two counties and a beginning made in a third center, Fayette County.

It has been known for a long time that poliomyelitis tends to follow lines of travel, and I think we have a good illustration in the epidemic occurring this year in Kentucky in following one of our main highways in the state.

As the epidemic stood between the first and middle of August, Scott County had fourteen old cases and two new ones, showing that there was still activity of the disease in this center. Fayette County had one new case. In the two weeks' period prior to this there were five cases. The center including the southern half of Madison and the north half of Rockcastle Counties had fifteen old cases and seven new cases. We find now that another county is involved along the Dixie Highway, Laurel County, with two new cases. Another center is just opening up in Daviess County, the first case having its onset August 14.

The situation as it existed for the period, August 15 to 31, shows that the Scott County center has quieted down, no new cases having occurred in this interval. Fayette County has aparently quieted down. The center involving Madison and Rockcastle Counties has quieted down. Daviess County is becoming more active, with five new cases, making a total of six August 31. Again the tendency of this disease to travel down the Dixie Highway is evidenced in three cases in Laurel County and a new case occurring in Knox County.

The situation between September 1st and 15th had very largely cleared up in the once active zone in the east central section of the state but is still very active, as you know, in Daviess County. We also have the beginning of another new center in Henderson County.

This map was just made to show what took place in these centers of poliomyelitis activity during the epidemic. We have three major centers and two minor centers. The first major centers occurred in two counties, Madison and Rockcastle; the second in Scott County; the third in Daviess County. The two minor centers have been in Fayette and Henderson Counties. Centers in Daviess and Henderson are still active. For this reason we do not know what the outcome will be, but it is quite apparent that activity has practically ceased in the centers traversed by the Dixie Highway.

Up to the first of October there have been reported 155 cases of poliomyelitis in the State of Kentucky. These cases have been reported in the counties which are shown in red on this map of the State of Kentucky. That gives you some idea of the extent. I have not taken into consideration the large number of sporadic cases which have occurred. In other words, there have been many counties which have been involved with one to five cases. These have not been shown on the maps because it would further complicate the discusion.

With these 155 cases of poliomyelitis there has been experienced a mortality rate of ten per cent. Seventy per cent of the cases have been under five years of age, twenty-nine percent have been between five and ten years of age, and one per cent over ten. The oldest case was approximately sixty years of age. Two cases were twenty years of age, and one case was thirty-seven years of age. There has been one family reported where there were two cases, both small children.

It seems to me there are a few things we can learn from the experience with this epidemic. As Dr. Gardner has pointed out, there is no effective treatment for the disease. We have no effective means of treating it serologially. We do not have any prophylactic method of combating the disease. It therefore seems that in any community visited by this disease, over-cautiousness should be regarded as a proper measure of control.

As an illustration, in the southern half of Madison County certain regulations were made restricting the movement of children. These regulations were carried out for a time but as a result of laxity in enforcement. new cases developed when the epidemic in that location had shown evidence of subsiding. After the regulations had been instituted again. and even more forcefully, the epidemic subsided and never gained any further headway.

The question arises as to when the precautions should be taken. Should they be taken upon the report of the first case in the community or should one wait until several cases have been reported? Here again we must call upon the experience in this epidemic and we can only say in those communities where the greatest amount of precaution have been taken. there has been the least trouble with this disease.

Isolation of children is probably the best known method of prevention at the present time. We do not mean by that to isolate the child in the house. but isolate the child in its own dooryard and put a barrier up in such a way that this child will not come in contact with other individuals. children and adults alike. This involves of course. a great amount of persuasion and a great amount of educational work in a community in order to make it effective.

With all of this uncertainty, we must realize that we have added also certain factors which make poliomyelitis probably the most difficult disease to control that we know of today. We have the factor of the known case, the carrier, the unrecognzied case and the abortive case. This disease has been spread by milk. Therefore, it is always wise to get safely pasteurized milk or see to it that all milk is boiled before given to children. We cannot lose sight of the possibility of this virus beng transmitted by insects because it is known to exist in the bowel discharges. For example, flies would serve as mechanical carriers from one place to another.

Summing it up, then the control of infantile paralysis is, first of all, a question of education, appealing to the reason of people in the community, and isolation of children from the avenues through which the virus most likely travels. If this can be successfully carried out, the greatest measure of protection, I think, is carried out at the same time.

Curran Pope, Louisville: It would be impossible for one to do more than touch upon one phase of this very broad and important subject. The others have spoken to you upon the causal conditions and I intend to speak more particularly upon what shall we do with the patient after the patient has the disease.

I have in my possession quite a number of microscopic slides of the spinal cords of children who have died of poliomyelitis. In the spinal cord we found both grey matter and white matter. In the anterior horns of the grey matter lie centers from which the peripheral nerves originate and eventually supply the motor nerves to the body to the different extremities. A study of those slides will show that in the areas that are affected by the infection there are a number of cells that are preserved, and reasoning logically one should make every effort possible to preserve each nerve cell because each on of those nerve cells represents a nerve fiber, and each one of those nerve fibers goes out to the muscular structure of the body. So the treatment at the start should be to preserve as much nerve tissue as possible.

This is an inflammation. and all inflammation is accompanied by an increased quantity of blood, an increased quantity of cells deposited at the point of inflammation, and therefore any measure that will increase the circulation and increase the elimination of the inflammatory products will act as a preservative of the nerve tissue.

There is no question in my mind for it has been demonstrated on a number of occasions that the use of electrical currents in the very acute stages is extremely valuable. The question of getting deep heat into the spinal cord will in a great many instances preserve much of the nerve tissue, and to this end we have a high frequency current known as diathermy that will accomplish it. If you combine two of these currents, that is to say, first heat up the spinal marrow with your diathermy and then follow it with the chemical or galvanic current, the combination of these two currents will soften and liquify the inflammatory deposits and through the increased circulation produced, elimination of the inflammatory products will be removed and a great deal of good will have been done your patient, not at that time curing the poliomyelitis but preventing further destruction of the nerve tissue which is very important.

In the primary stages we have large areas involved, but the study of the clinical course and history of the disease shows that sooner or later it settles down to restricted areas of the cord, involving as a result, a leg or arm, or some other section and the idea of this treatment is to make that limited portion as limited as possible.

When we come to the question of the treatment of the after effects of acute infection, it should be borne in mind that here all measures possible should be employed. I want, however. to add one thing to the doctor's paper that I think is most important. In the first place, we must continue heating the spinal cord and using our chemical current, if possible, to build up the tissues of the cord itself, and we must keep persistently exercising the muscular structures of the affected portions of the body.

For this purpose there is only one current that is valuable and that is the galvanic current. You cannot do this with a high frequency current or a faradic or any other current except the galvanic, because the muscle will not contract under those currents.

P. F. Barbour, Louisville: I have had a great many cases of poliomyelitis and I have been exceedingly interested in Dr. Gardner's paper which was a very timely one and a very able one.

There are one or two features I want to speak of particularly. First of all, the early diagnosis of poliomyelitis. Dr. George Draper, during the epidemic in New York in 1927, coined a special term, the dromedary curve. That is, there is always a preliminary stage to polimyelitis, an interval, and then the paralysis. That stage may last for two or three days and then paralysis occur. There may be an interval of a week or two and then the paralysis occurs. During the first stage the child has an upset stomach, or vomiting and diarrhea, or it may simply be a lack of appetite poor digestion for a few days, child out of sorts, and then, like a stroke of lightning out of a clear sky, the child wakes up in the morning paralyzed. The dromedary curve represents, then a two-stage disease.

I believe many of the cases of poliomyelitis go through the first stage, the abortive type, and never get to the second stage. That is a thing that saves the lives and health of many of your children. I believe when the epidemic is present if we watch for cases of unusual types of indigestion and stomach trouble and isolate them, we would be doing a good deal to prevent the spread of this disease.

Unfortunately we do not know how it is spread. Most of the cases I have seen have not been within a mile of a previous case and there seems to be no contact one to the other. Some of the Health men will eventually discover the way by which this contagion is carried.

There are one or two symptoms about the beginning of the paralytic stage that I should like to emphasize. One is the increased pressure in the cranial cavity. If you percuss on the child's head and then on your own you will get a distinct difference in tone. On percussion there is a tympantic note, and the more drum-like it is the greater the pressure in the cranial cavity. Whenever this sound is present, you will do that patient a great deal of good if you will give the child a spinal puncture. It not only relieves the immediate tension, but it will relieve a great deal of pressure down in the spinal cord where there is so much injury due to hemorrhage and infiltration of round cells. Undoubtedly a puncture at this stage would be of tremendous help and benefit your case. Another characteristic early symptom is the inability to flex the chin upon the breast, though rotation of the head is not especially painful.

One other point: Along with the increased tension in the skull there will be other symptoms. The patient will have headache, pain in unusual parts of the body, a little rise of temperature near 101, 102 or 103 and rather a grouping of symptoms that do not occur in any other disease. If you will keep these things in mind you will be able to make an early diagnosis in some of the cases.

As to the value of the serum treatment, I was enthused with the first case of polio to use the Rosenow serum, and I used ninety cc. Although paralyzed the child lived, but he might have had a worse paralysis if I hadn't used the Rosenow serum. I am not so certain of the benefit of the animal sera.

I have one last word which I should like to throw out for the benefit of the mothers and fathers. Some of the authorities say that a child that has poliomyelitis, if it lives through it, has much better brain power than it would have had if it hadn't had it. Statistics go to prove it.

V. E. Simpson, Louisville: I heard a member of this Association say today at noon that it had occurred to him it would have been a wise plan to have decided to hold this meeting in some other place other than in Daviess County because there was an epidemic of polio here. It seems to me if we do nothing else in this meeting that might be stamped as an act of wisdom, we have done something wise in coming to Daviess County despite the epidemic. (Applause) We thereby show to the public, to the people of the State of Kentucky, that doctors do not fear the disease so far as immediate contact in ordinary conditions is concerned.

There are so many features of polio that are of interest that one scarcely knows where to begin and where to stop. In the first place, I think it is true that there are quite a number of cases that do occur without paralysis that are never diagnosed. I am equally sure that in an epidemic such as now obtains in many of the counties in this state today there are some cases that do not present paralysis as a terminal stage that are diagnosed as polio and which are not. Therefore, we are not certain that every case that is reported as polio in an epidemic of this or any other state is actually poliomyelitis.

Perhaps forty per cent of the cases of polio that are definitely proven to be polio, so far as any evidences of study, both laboratory and clinical, may be carried out, do not show paralysis and fortunately a large per cent of those that do show some paralysis completely recover.

There are some features, from a diagnostic standpoint, that are interesting. The apparent stiffness of the muscles of the spine and neck is of interest. It really is not an evidence of pain so far as the child lying still is concerned, but the child, from experience, dreads movement since that is what causes the pain. It is not really a disturbance in the muscle itself causing actual pain when quiescent or passive, but a pain incident to motion.

Another interesting phase from a diagnostic standpoint comes in the group of cases that show evidences of trouble in the brain structure—in the brain stem and in the medulla. Whenever a case begins to show evidences of cyanosis, embarrassment of respiration, limitation of respiratory range, that cases is pretty nearly doomed. It makes but little difference so far as expectancy is concerned when only a group of muscles of the leg or arm become involved, but when it extends itself so that the respiration becomes involved the outlook is exceedingly grave.

Regarding the study of spinal fluid, I think every case that is suspected of having polio should have a spinal puncture. Not that by so doing we can say polio does exist, but what we can discover other conditions that might be there. We can not grow a culture from the spinal fluid and isolate the organism because we don't know what it is; but the evidences that are found, increase of globulin, increase of cell count, etc., help to exclude encephalitis, which you find lethargical. Also you may find the bacteria of the epidemic type of meningitis or of tubercular meningitis, as was told this morning, hence the study of the spinal fluid is important from a diagnostic standpoint. If the spinal fluid is found normal in what do you think are clinical evidences of the disease, it certainly makes you much more comfortable.

W. B. Owen, Louisville: Unfortunately, I did not hear Dr. Gardner's paper, but I heard Dr. Virgil Simpson's discussion and as characteristic of all his discussions when he has finished there isn't much to add.

He took up the situation from a medical standpoint, and of course, much can be said because there is so little known for certain. There are a few things that are known from an orthopedic standpoint.

In the first place we feel, and it has been demostrated by Dr. Lovett and others that have gone through a number of epidemics of polio, that the average case of infantile paralysis is overtreated. In other words, if we could put the patient to bed in a normal posture and let him alone a great many more would recover than do by tinkering. All the neighbors, friends and some of the enemies tell him a great many things to do. In view of the fact that the doctor can't immediately relieve the paralysis the patient is very prone to accept some of these many types of treatment, most of which are very harmful.

We do know that practically all cases of infantile paralysis, after the initial paralysis is discovered do get better, not so much as a result of the treatment but in spite of the treatment.

Two points must be borne in mind: First, rest. Second, prevention of deformity. It isn't so much to our credit to correct a deformity as it is to prevent the deformity, and it can be prevented in nearly every case up to a certain point. At least two years, not under that, should elapse before any surgical interference is attempted.

The definite degree of paralysis can not be determined under two years, during which time helitotherapy, heat, massage and regulated active exercise can be instituted. Especial attention should be given the patient's general constitutional condition.

A. T. McCormack, Louisville: There are three things that we know fairly definitely that are important. In the first place, when an epidemic starts we know that they are sometimes spread by milk where milk is infected from an infected patient. Knowing that, milk supplies in towns where the milk has not been properly sanitated, that is, pasteurized, should be boiled. That is one of the universally accepted methods for the prevention of the spread of poliomyelitis.

It is of interest in Owensboro that the evidence is perfectly definite that there have been no milk borne cases here, but the general statement could be made that milk should be boiled where it has not been pasteurized, that city milk should always be pasteurized.

In the next place, where cases of poliomyelitis occur in unsewered sections of towns, special emphasis should be placed on the sanitation of privies and outhouses because flies from the feces can carry the infectious virus of the disease. Contact cases are very difficult to trace after they have gotten a start in a city. You can trace them without difficulty in the rural districts, but it is very difficult to do it in the state.

In the third place, children during an epidemic of this or any other disease should be kept at home by themselves, I mean on their own grounds. This matter of herding our children and letting somebody be the cowboy over them has gone entirely too far, and if the epidemic did no other good than to find some method for entertaining children at home it would have accomplished a very great purpose. We need to keep our children home more and get better acquainted with them.

If your children are infected, keep them at home in screened houses that are clean, and if the outhouses have had proper attention they are less apt to contract the disease. Of course, after they become infected you want to keep them isolated in screened rooms to avoid any possible infection of others.

There is always a tendency among people to scatter over the face of the earth as soon as disease occurs. It is of interest that cases of this disease, as of all other infectious diseases, developing away from home are apt to be more fatal and the effects of it, so far as paralysis is concerned and other conditions, are apt to be more severe when away from home than they are at home unless treated in a hospital because they can't be given the same facilities for treatment. For this reason, we urge people to stay at home, keep their houses clean, keep free from all sources of infection possible during the epidemic and all the rest of the time, and in that way we will have a healthier community not only as far as it affects poliomyelitis but typhoid fever and bowel diseases of children, diphtheria and measles, and other things, because all the precautions that should be taken against the other known methods of infection should be taken against poliomyelitis and we have determined exactly the method of its carriage.

PRENATAL CARE IN NORMAL PREGNANCY.*

By W. T. McConnell, M. D., Louisville.

The fact that routine prenatal care is of great importance has been conclusively proven in many ways, but especially is it demonstrated in the work of the prenatal clinics now being conducted in the larger centers of population in this country and abroad. As will be shown by the records of our own clinic in Louisville City Hospital read before this association by Dr. Alice Pickett, both the maternal and fetal mortality show a tremendous reduction in clinic over non-clinic patients.

When physicians and laity are fully acquainted with these facts, it is safe to say that we will cut down our mortality figures more than one-half from their present distressing state.

The work of getting the enlightening information to the ultimate destination is now progressing more rapidly and effectually than ever before, and should, before long begin to bear fruit in a marked saving of life through the country as a whole.

The better methods of teaching in our medical schools; the clinics in our cities, the Public Health Service over our states, the increasing number of papers on this subject before our medical societies and in our medical journals, the saner attitude of the public towards the dissemination of information on these subjects formerly considered as more or less immodest; the more scientific attitude of the medical profession toward the prevention as well as the cure of disease; all these things are rapidly conspiring to make of expectant motherhood a less hazardous and painful phenomena.

Several formidable difficulties present themselves as a hindrance to the securing of adequate prenatal care. For the more intelligent and wealthy patients in our cities who place themselves in the hands of the obstetrical specialists, where the fees are more commensurate with the services rendered, and for the poorer city patients who will take advantage of our well organized clinics, no reason exists why these expectant mothers should not have proper care. But a very small percentage of cases are so handled. One great difficulty in the way of proper care is the meager fee ordinarily received for obstetrical work. Physicians feel that when they conduct a confinement case for a mother that family will continue to call them as their family physician, thereby establishing more firmly their clientelle. And it is true that no work of the doctor so strongly attaches his patients to him as does his obstetrical work. But to give these patients even the minimal amount of prenatal care compatible with safety, then conduct the delivery, and give them proper postnatal care, receiving for these services a fee of from $10.00 to $25.00, would require an amount of work for which even the most uskilled laborer would receive far better remuneration for the same number of hours employed, to say nothing of the doctor's overhead expenses. So the natural tendency is for the emphasis to be placed upon the actual delivery of the child, with the employment of such time-saving means as pituitrin, etc., and a hurrying back to his more remunerative practice. And in the wake of this procedure follow the various preventable complications.

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*Read before the Kentucky State Medical Association at Owensboro, October 3, 4, 5, 6, 1927.

Then the two great enemies of all progress, ignorance and tradition, present themselves as real barriers. In discussing this problem with men who are working in rural communities, they say that it is the custom for the patient to wait until labor is established before any medical supervision is thought by the patient to be desirable. Their mothers followed this plan and survived, so why should they submit to the embarrassment of prenatal consultations? Several doctors have told me that their patients consider it immodest to consult them before labor sets in.

Another thing that makes against securing care is the custom prevalent in most outlying sections of making extra charge for all prenatal and postnatal visits and office consultations. As long as this system is prevalent, few patients will consent to incur what to them seems a needless expense. "As long as I feel all right," they say, "why waste may time and money?" The obvious remedy for this is the adoption by the profession of a contract fee system in all obstetrical cases.

There will always be a certain percentage of patients too ignorant, careless, foolish or lazy to put themselves under a physician's care when they should. There will always be a small number of doctors too indolent to care whether or not their obligation to their community is properly discharged. But the remedy for our prenatal ills is at hand, and the work of putting into effect the requisite measures for amelioration is going forward rapidly.

One of the most important factors for betterment in our own state is the work being done by the child and maternal welfare bureau of the State Board of Health under the direction of Dr. Anna Veech. Through this department splendidly prepared material can be obtained. The physicians may have these forms sent to them for distribution among their patients or they may have them sent directly to their expectant mothers. The subject matter thus available is so prepared that the interests of the physician are thoroughly safe-guarded; the prime admonition is for these women to consult their doctors. The character of the instruction given herein is such that it is easily understood by the most ignorant, at the same time appealing to the most intelligent. It is so tactfully arranged as to give no offense to the most modest. It is so highly instructive that it would be well worth the reading by any physician. If this material could be gotten into the hands of every expectant mother in our state, what great advancement would be realized, especially in the attitude of the laity. And if, in conjunction with this, every physician could study carefully the information given by Dr. Pickett before this meeting regarding the results actually obtained in her Louisville Public Prenatal Clinic, Kentucky would at once step to the front rank as the banner state in prenatal care.

No development of recent times has occurred which should give us more gratification along these lines than the work of these two agencies. Dr. Veech told us but a few days ago that in every quarter the doctors were giving most enthusiastic cooperation in every way, and that there is a most eager desire on the part of the laity for this information, once they learn that it may be obtained. She says that large numbers of mothers write her that they never knew that they should consult their doctors for prenatal advice. Many mothers who would not inconvenience themselves for their own welfare, will become most diligent in their efforts when they come to understand that the safety and well-being of their unborn children are at stake.

The laity as a whole will seek adequate care when the medical profession fully realizes the importance of it. And the doctor will be constrained to measure up to his obligations when the laity becomes thoroughly educated to the seriousness of neglect on their part and demand of us that which is their right. And the doctors must lead the way.

Prenatal care in the normal case is, of course, a procedure of prevention. As the scope of this discussion does not include the treatment of abnormal or pathological conditions, we shall confine ourselves to uncomplicated pregnancy.

In the first place, it is the duty of the physician to ascertain whether or not each case is normal. This will require a careful physical examination, in order to rule out pathological conditions which may or may not be strictly obstetrical. The lungs, heart, kidneys and gastro-intestinal tract should be carefully interrogated. Old foci of infection should be diligently sought for, especially in the teeth, tonsils and sinuses. The extremities are inspected for vericosities, flat feet or other abnormalities.

A thorough pelvic examination should be made early in pregnancy to determine the condition and position of the uterus, the status of the tubes and ovaries, the presence of tumors or infections in the genital tract, the general size and contour of the bony pelvis.

The patient's history is exceedingly important. We should ascertain how many children have previously been born to her; what complications she has had in previous pregnancies, the size of previous babies; the length of time in labor, whether or not the deliveries were normal or instrumental; the number and cause of all miscarriages and premature births and the stage of gestation in which they occurred; the character of menstrual periods; the history of any and all "female troubles," the presence and character of vaginal discharge.

A thorough search for the history of indications of the presence of syphilis should by no means be neglected. If evidences of this disease are found, such as miscarriages, premature labors or still-births, a blood test should be made.

The history of any other disease should be noted. Also such things as loss of weight, poor appetite, lowered energy, "bilious" spells, nervousness, hysteria, fits, headaches, disturbances of vision, or any chronic disorder. An afternoon fever, however slight, is an indication of infection somewhere, often in the lungs.

After having determined that no marked complication exists, or in other words, that the patient is, from a physical and obstetrical standpoint, normal, the next considedation is what constitutes safe and adequate prenatal supervision. Probaly the two most important things to watch in the apparently normal patient are the blood pressure and the urine.

Examination of these should be made at least every four weeks during the first half of gestation and every two weeks the latter half, and more frequently if any trouble is found. The urine should be examined especially for albumin, sugar, casts and pus.

A small trace of albumin with casts in the early months usually means a chronic nephritic condition, and when found in the latter half, especially if free in the early stages, means either beginning toxemia or acute nephritis. Pus indicates either pyelitis or cystitis; pyelitis when associated with fever and pain in the kidney region, and cystitis when accompanied with frequent and painful urination and pain just above the symphysis.

Sugar in the urine may or may not mean diabetes. If small in amount and no attendant symptoms, it is probably galactose. The fermentation test will differentiate between galactose and dextrose, the former giving a negative and the latter a positive reaction. If negative, no undue concern need be felt, as the phenomena is merely the presence of milksugar from the lactation function.

If fermentation is positive, still the presence of dextrose does not necessarily mean true diabetes. It may be due to alimentary glycosuria, or a lowered kidney tolerance. If a history of glycosuria before pregnancy be obtained, if the symptoms of excessive thirst, polyuria, emaciation and dyspnoea are present or if the glucose is found in large quantities, then it should be considered a true diabetic state. If, on the other hand, the glycosuria is small in amount, and disappears promptly upon carbohydrate restriction, the condition is probably alimentary. If still in doubt, a blood-sugar determination is valuable. While the presence of sugar during gestation is rather frequent, yet a true diabetes is comparatively rare. But when it does exist, it offers a very serious and dangerous complication.

The blood pressure readings are also of prime importance. During pregnancy the systolic pressure is usually somewhat lowered, the usual reading being from 100 to 120 mm. A sudden rise of 15 to 25 mm. should put us on our guard. The diastolic pressure is hardly less important. The difference between the diastolic and systolic readings or pulse pressure, should be at least half as much as the diastolic reading. As the diastolic reading is the indication of the amount of pressure exerted in the arteries when the heart is at rest, an elevation of the diastolic pressure usually means an irritating element acting upon the heart muscle, preventing adequate relaxation of the myocardium. An elevation of the diastolic is often an earlier sign of toxemia than is the rise in the systolic pressure.

A thorough obstetrical examination should be made from three to six weeks before the expected date of confinement. A vaginal examination will reveal the condition of the vulva, perineum, vagina and cervix. The amount of dilatation noted, the height and identification of the presenting part, whether or not the sacrum can be felt, and a general determination of the proportion between the child and the passage. Also the presence of obstructing tumors may thus be discovered.

Abdominal examination will reveal the

height and size of the uterus, the location, rate and character of the fetal heart sounds the lie of the fetus and whether or not the pregnancy is single or multiple.

A careful examination of the size and contour of the bony pelvis is very necessary especially in primaparae or in multiparae with a history of difficult labors. The pelvimeter should be used in securing external measurements as in this way many abnormalities may be discovered which would be otherwise overlooked. Especially important is the measurement of the pelvic outlook.

While it would be impossible to say just what would constitute a minimal amount of prenatal examination, yet no less than the foregoing, could possibly be considered as adequate, even in any normal case.

The instructions given each patient regarding her mode of living and personal care will of course vary somewhat with her surroundings and environment. Yet suitable advice in these matters will aid greatly in keeping the patient a normal case.

The following items are suggestions which may be found helpful.

Exercise: All strenuous exercise is to be prohibited. Heavy lifting, work to the point of fatigue, severe reaching, sudden jars and vigorous calisthenics are harmful. Such sports as horse back riding, swimming, tennis, basket-ball and golf should be avoided. Long automobile trips or even short rides over rough roads often produce miscarriages. Short rides over smooth roads are beneficial. Light household duties are helpful. Outdoor walking is probably the best form of exercise. To the normal patient a two-mile walk in the open air walking slowly and breathing deeply is especially beneficial. Dancing, when indulged in to the point of fatigue or the more strenuous forms of modern dancing, is harmful. Especial care should be exercised around time of menstrual cycle.

Bowels: The bowels should move once daily. Much can be done by diet and exercise. Strong purgatives should be used only as an emergency measure. The salines are perhaps the best laxatives in pregnancy, Enemas should be used sparingly, and the water should never be hot. Warm water without irritants, should be employed.

Clothing: The clothing should be comfortable. In warm weather, loose cool garments are best. In winter warm clothes are very desirable. Undue exposure, such as is often encountered in the modern styles, is to be avoided. The shoes should be comfortable, the heels not too high. The military heel is probably the best. Circular garters are not to be worn. The stockings should be held up by straps from the shoulders or from an abdominal girdle or maternity corset. After the abdomen begins to enlarge, a properly fitting maternity corset gives good results. This corset should be adjustable, so that it can be let out as enlargement progresses. It should fit snugly, but should not exert undue pressure at any one point or push down on the abdomen. It is an advantage to put it on lying down. If the breasts are pendulous, they may be supported by a properly fitting bust supporter.

Bathing. Especial care should be exercised to keep the skin clean, warm and active during pregnancy. Much work is saved the kidneys by skin secretions during this time. A daily warm (not hot) tub bath with mild soap is very beneficial. Cold bathing of any kind is unwise. Seat bathing should be denied. Toward the end of pregnancy a warm shower or sponge should beplace the tub bath, lest germs from the bath enter the vagina and cervix.

The Breasts: In supporting the breasts, no pressure should be exerted on the glands. They should be kept warm and protected against injury. During the entire time the nipples should be kept clean with frequent mild soap and water cleansing. In the last few weeks of gestation they should be gently massaged with vasoline or alboline, to prepare them for the traumatising effect of the baby's nursing. Slight traction may be made during the massaging process, especially where the nipples are small or retracted. No astringent washer should be used. In case of tender or sore nipples a wooden nipple shield is valuable protection.

The Teeth: During pregnancy the acid condition of the mouth makes the teeth particularly susceptible to decay, therefore, they should be kept scrupulously clean. Temporary fillings and the extraction of diseased teeth should be done.

Heartburn may be prevented or relieved by the use of soda-mint tablets, bicarbonate of soda, or milk of magnesia.

Sexual intercourse should be avoided during the first and last weeks of pregnancy and at the menstrual epochs. To many women it is distasteful during the entire pregnancy, but in some the desire is intensified. It is not particularly harmful in moderation, especially at the instance of the woman, under favorable circumstances.

Leucorrhoea is a very common problem during pregnancy. During this time the normal discharge is frequently excessive to the point of discomfort. Generally speaking, vaginal douches during pregnancy are a source of danger, but with a troublesome leucorrhoea, it may be necessary to employ them in the interest of cleanliness. A mild boric acid cleansing may be used. The water should not be hot, nor cold, a short nozzle used, and the bag held not higher than the waist.

Diet: The diet during pregnancy should be simple and well diversified. During the first half of gestation the tendency to acidosis and the carbohydrate needs of the developing fetus require such articles as the citrus fruits, cereals, and restriction of fats and greasy foods. During the entire time of pregnancy, highly-seasoned, indigestible or fatty things should be forbidden. Especially important are use of foods containing the vitamin B, such as whole wheat bread, bran, or foods containing the husks of cereals. Green vegetables and milk should be used freely, for their calcium and iron content. Lean meats may be used in moderation if no kidney lesion develops. Abnormal cravings should be gratified if not actually harmful. Alcoholic beverages should be prohibited unless the patient is in the habit of taking them; if allowed, the alcohol should be well diluted and in very moderate amounts.

At present a good deal of investigation is being done along the lines of restricting the size of children at birth through means of maternal diet control. The work of Prochonwick confirmed by Reeb and Noll Paton, shows that a diet poor in carbohydrates in the latter months of pregnancy exerts a favorable influence in lessening the weight of the child without otherwise affecting it. Williams says that these precautionary measures may obviate a difficult delivery, or even do away with the necessity for the induction of premature labor.

In cases of slight pelvic contraction, or in patients who have previously had difficult labors by reason of execssively large children, or in primiparae with a tendency to adiposity, I have secured splendid results with carbohydrate restriction, combined with regular outdoor walking, in the last three months of gestation. In every case the weight should be carefully watched. It has been interesting to note that when patients are on this diet and exercise schedule the rate of gain is in direct proportion to the diligence with which they adhere to the program. By recording the weight at regular frequent intervals, the patient herself can see that a lapse on her part is evidenced by an unusual gain. It has seemed to me that not nearly such good results are obtained unless the diet schedule is combined with the regular daily walks, and that household duties, however strenuous, do not take the place of a continuous outdoor walk.

It is also apparent to me that when this diet is adherred to and the walking diligently persisted in, the patient is not nearly so likely to carry the child overtime.

A diet poor in calcium looking toward softening the bones of the fetus that delivery may be faciliated has been suggested, but this would be harmful to both mother and fetus, even though successful in making the bones more pliable.

Slemons and Fagan, in an article published in the August, 1927, issue of the American Journal of Obstetrics and Gynaecology, give some very interesting information along the lines of weight restriction. In a study of 500 consecutive cases they showed that the gain in the mother was practically in direct proportion to the size of the infant.

A table of their findings follows:

Weight of infant	Number of cases	Per cent of series	Average gain of mothers
5 to 6 pounds	34	6.8%	11 pounds
6 to 7 pounds	132	26.4%	14 pounds
7 to 8 pounds	205	41.0%	17 pounds
8 to 9 pounds	107	21.4%	10 pounds
9 to 10 pounds	19	3.8%	24 pounds
Over 10 pounds	3	0.6%	26 pounds

In preparing this paper I went over my personal records from January 1, to September 1, 1927, and found the following results in 40 consecutive cases delivered during this time:

Weight of infant	Number of cases	Per cent of series	Average gain of mothers
5 to 6 pounds	2	4.0%	13 pounds
6 to 7 pounds	9	22.5%	16 pounds
7 to 8 pounds	17	42.5%	18 pounds
8 to 9 pounds	7	17.5%	28 pounds
9 to 10 pounds	4	10.0%	29 pounds
Over 10 pounds	1	2.5%	40 pounds

These tables show that there is a distinct relationship between the mother's gain and the baby's weight.

I have been able to greatly reduce my difficulties at delivery by using this method in appropriate cases.

Slemons and Fagan suggest the following diet in cases where restriction of birth weight of the baby is desired.

Breakfast: Coffee or tea with toast and very little butter.

Mid-morning: A cereal wih milk, no cream.

Luncheon: Bread with an egg, or soup, or salad.

Mid-afternoon: Orange juice, tea, or bouillon and crackers.

Dinner: One chop or the equivalent of some other meat: two vegetables, in moderate quantity and without a second helping; a simple desert, preferably fruit.

I especially emphasize the use of green vegetables and ripe fruits.

The after-history of these babies has been especially gratifying. I have been employing this system in selected casese for the past three years, and in no case has there been any growth or developmental difficulty. In fact, quite the contrary has been the rule.

The mental condition of the patient should be kept placid and cheerful. The woman, especially with her first baby, is often beset by the recounting of friends and neighbors of all the harrowing experiences they have met or heard of, until the wonder is that they remain as cheerful as they do. The physician should early gain the confidence of his patient, assuring her of his ability to handle her case safely, and that with the developments of modern obstetrics, his power to rid labor of its horrors and severe suffering. Especially should he relieve her mind of the dangers of marking her baby through unfortunate maternal impressions. She should be encouraged in the enjoyment of proper amusements, of pleasurable and profitable reading, and cultivation of a cheerful and happy disposition, fearing no ill, but trusting her case implicity into the care of her physician, the captain of her comfort and safety.

DISCUSSIONS

Annie Veech, Louisville: I have greatly enjoyed Dr. McConnell's excellent paper. I see that Dr. McConnell belongs to the constantly increasing group of physicians who are giving to their obstetrical patients modern scientific prenatal care. We are getting away from the old type of so-called prenatal care, where the physician thinks he has done his duty when he passes the compliments of the day with his patient and tells her not to worry. A new interest has come into this subject, especially since the reorganization of the American Association of Obstericians, Gynecologists and Surgeons. This group of men has brought to the public notice the modern intelligent care of maternity cases.

The data we get from well run clinics, such as exists in our larger cities, has been most helpful in this. It has been most disheartening to me, in the five years that I have worked in my state for better care of mothers and babies, to know that generally over the country there is not a lowering of the maternal death rate; but in these centers where clinics exist, where intelligent care is given to women, we do find there is both a lowering of the maternal death rate and the infant death rate. These centers where modern obstetrics is taught are wonderful places for us to go and get encouragement because they make us realize what can be done, and what will be done, for maternity cases over our land within the next ten years.

A large part of the work of our Bureau of Maternal and Child Health has been with the women of the state. The physicians cannot go out to the women in their practice and say, "Come in to see me for prenatal care," but we can go to those women and tell them that there is prenatal care to be had and they should go to their physicians early in pregnancy. Ignorance and tradition, as Dr. McConnell has said, regarding such care has been a great handicap in getting women to their physicins. There now exists a better understanding and more and more of them are going to their physicians.

In discussing the cost of prenatal care and delivery, I would like to remind you that it is not an unusual thing when a patient goes to the surgeon to ask the surgeon what an operaton is going to cost. When parents take a child to a throat specialist, the question is "What is it going to cost?" and a lump sum is usually mentioned, the physician not counting every visit that he makes. When we educate our families to this understanding, they will be willing to pay for what they get and to realize the value of what they are getting. One would hardly go to the throat specialist or to the surgeon and expect him to do an operation for ten dollars, and yet that is what is considered a good price for obstetrical care.

The foresight of the physician in guarding and guiding the patient through the prenatal months saves trouble at the time of delivery.

I was glad to see Dr. McConnell outlining so well the food needs of the patient. Dr. McCollum, of Johns Hopkins Medical School, says that a pregnant woman needs a quart of milk a day to build the muscle, the teeth, and the bone of the child, if the teeth are to last and the bones are not to become crooked. He also suggests that the pregnant mother take at least a teaspoonful of cod liver oil several times a week, that the lime in the milk may be retained in her body for the protection of her own body and for the child's body building needs.

I am interested in Dr. McConnell's suggestions about exercise and correct food for the maternity case in relation to the size of the child. We do not hear intelligent parents bragging these days about ten or twelve-pound babies. They know that such big babies are due to lack of intelligence and self control, something of which to be ashamed, rather than something of which to be proud. We do away with a great many obstetrical complications, when the child is of fair and normal size.

R. C. Burrow, Cunningham: It was a most excellent paper, but the only thing I wanted to speak of was where prenatal care should commence. Prenatal care should commence with the physical culture of our young girls. We want a physical culture that will develop stronger, stouter girls and especially develop the abdominal muscles of the body. Walking develops the abdominal muscles. A great many of our girls have physical culture in their schooling now but it does not develop the abdominal muscles to the extent necessary for child bearing or that a full course in physical culture will. Cultivate those abdominal muscles by raising the body when lying in the recumbent position and by raising the legs without flexing the knee and give better development to those abdominal muscles.

Then at the time of labor such remedies as we used to administer to stimulate labor pains or to prevent possible hemorrhage, and often do much harm, can be thrown aside. It won't be needed.

A. T. McCormack, Louisville: I want to suggest to the members that this paper is open for discussion. There are a lot of men here who know a lot about obstetrics, and don't be mealy mouthed about it. Say what you have in your minds and don't go back home and wish you had said it. We want it for the Journal. This is a postgraduate course where some of the classes are expected to talk as well as the professors. I don't think it is right to have such a paper as Dr. McConnell's not discussed. That is one of the best papers I have ever heard and it has meat in it.

We know that in Kentucky, for the first time within the past few years, twenty-five at the most, we are having a tremendously increasing number of women coming to us for prenatal care. Why? Because they are being taught that when they are under the supervision of an obstetrical engineer during pregnancy—and that is what the doctor is if he is of any account at all—they have safer labors, healthier babies, and that is the most important thing in the human race. That is what we are here for, to leave somebody behind us to carry on when we have gone.

The whole gamut of public health is run through in this work. You knew we started a few years ago with the examination of school children in Providence. All of us remember when Dr. Chapin's first figures were announced. It didn't register anything on our proud minds. We just felt sorry for the folks up in Providence who had so many defective children. It never occurred to us that half of the children in Kentucky were under nourished. We had never thought about the fact that some seventy or eighty per cent of our children had defective teeth due to malnutrition, due to the fact that they weren't being fed properly. We weren't feeding the babies with the same judgment or the same sense that we were feeding our hogs or cattle that we were selling. Yet when we commence to examine our own school children we find the same conditions confronting us. Kentucky school children have not been examined yet, but just as soon as we begin to examine children in any place the wisdom of Providence in providing examinations in pre-school years develops in our minds. That is the time when defects that haven't been corrected in previous generations can be corrected as far as it is possible at that late time.

I am glad Dr. Burrow emphasized the physical development of the girl. It is just as important for the father. I have been thinking seriously in recent years of organizing an association for the rearing and promotion of successful fathers. I have been paying a good deal of attention to mothers, but the fathers have been almost wholly nglected. They need to have a lot of attention paid to them and they need to realize that the important function of fatherhood should only be indulged in by the physically fit and the mentally alert.

The other day we had in Louisville as our guests, as I have had occasion to refer to before, three of the state health officers of the Australian states. I was very much interested in hearing their reports as to the obstetrical conditions in Australia. I think it is important that we think about what they said because if conditions in medical education continue for the next few years as they have for the past decade or so we are going to have to begin to adopt some such measure.

In every community of any size at all they have a nursing home where patients go for delivery. The women from the isolated sections are brought to them in automobiles, or in case of necessity in aeroplanes so they can be cared for there. If the labor is entirely normal usually in the vast majority of cases they are cared for by trained midwives, assistants of doctors. Every physician has a number of such midwife assistants. They belong to two classes. They are either nurses who have had their three years' training and have received their certificates and taken a year's post-graduate course in one of the two institutions in this great country where they are given very expecc training by the leading obstetricians of the two cities of one million or more people, or they are young women who are trained as midwives in a year's course as nursing midwives. These midwives are in the consultation practice, consultation area for medical obstetricians. The vast majority of normal labors are conducted by these women.

I know in our minds when we speak of a midwife it makes an entirely different mental impression. We ought to call them something else if we are going to have anything of that sort. A midwife in this country is usually some rather soiled old sister who has qualified herself by having a few miscarriages and a few babies and who wants to eke out a meager addition to her income by going around and giving a very terrible sort of nursing care.

In so far as it has been possible to do it in the sections of the state where we have to have midwives, and we have very few in Kentucky, the board through the county health departments has been attempting to supervise their training. We have at least gotten them washed a few times and have gotten them to understand the importance of cleanliness, and that they musn't do anything except to be there, they musn't interfere in any sort of way with the labor, and they must have a minimum of armamentarium in their bags which are supervised. That is purely a makeshift. That hasn't anything to do with the problem, but as we develop our country in the rural sections of the state where there are fewer and fewer doctors we are going to have to do something about it. I know all of you in the House of Delegates were impressed with the fact that almost every delegate from the important rural sections of Kentucky reported that they have from one-third to a fourth and fifth and sometimes a tenth as many doctors as they had twenty-five years or thirty ears ago.

It is physically impossible for men to supervise the number of labors that occur in many of our counties with the small personnel they have and some sort of system is going to have to be developed. We have got to face that problem or do something about medical education. I hope we will do both, because I believe we ought to face all of our problems.

There can be no question, and I hope the profession of the state will realize that and emphasize it in season and out of season, that the important economic problem of Kentucky is the condition of its people who live in the country. If every city in Kentucky were destroyed tomorrow by some great calamity of course it would be a terrible thing and we would all be shocked, but the people of the country would repopulate those cities and have them reestablished and rebuilt in a short time. Look at San Francisco, or any other city that has been destroyed.

But if the rural sections of a country are destroyed its people become like the Romans and Athenians and all the other empires of the past that have brought their people to the cities that have become destroyed in morals and every other way.

Men are not meant to be city dwellers, and as we look at the population of our great city of Louisville today, with all its excellent worth, it is astounding to see the small number of families who live there for many generations and the small number of people in those families. Our country people are our important people, and both economically and from a public health standpoint the most important thing that confronts us in medicine, or that confronts Congress and legislations of this country is the welfare of the dwellers in the country. People are not going to be kept in the country as long as we constantly reflect on their conditions and do not help them to improve those conditions.

The thing I hope we will be thoughtful about, every one of us as we go about our work, as we talk to our legislators, as we talk to the newspapers, is the health of our citizens who are tilling the soil, as well as those who are digging in the mines because they are the two classes of productive citizens that make the living for every single one of us. When the agricultural and mining conditions are bad in Kentucky the medical conditions are bad. We eat less and wear less under those circumstances and we ought to because until we have begun to be thoughtful of those people we are not going to get anywhere and it is just as important in obstetrics as in other lines.

As we hear Dr. McConnell's paper we realize the importance of training our women so they come to our offices during their pregnancy and consult with us. Don't merely say when they come in, "You look good, you look fine." All women look that way when you take a glance. You want to find out whether they are good and fine, how to have them strong for that important function. It is perfectly apparent from statistics that most women can get along on an average of very well. We have gotten the idea too much that when a woman has a baby our function ceases. No doctor has done his duty unless two years after that baby is born that woman is a well mother. No doctor has done his duty unless when that child is born she is impressed with the importance of feeding, and she has to be so nourished that she can feed the baby, and so that the baby is worth feeding when she has got it.

The need of discussion that is greater in the cities than it is in the country because, thank God, most of our country women give good milk and plenty of it if they are fed right, and you can always control that if you feed them.

We are finding in the mountains a wonderfully interesting thing that will not infrequently be the case in some of the rural districts. I went into a grocery store in Nelson County and was very much astonished to find that the eggs were shipped from Iowa through a wholesale house in Louisville. The eggs from Nelson County were shipped to New York. They don't have any local eggs for sale. The vegetables came from all over the country. There were not enough gardens in Nelson County to feed any but the poor people who raise them. That is a mistake and is because the people aren't educated right. They are raising tobacco and other things then can't eat. The food they raise for their children is far more important than any amount of money.

We find the butter fat is being shipped away to make the grease that we now call butter, which is shipped back to us and sold at an enormous increase in price. Our children are being fed on Nuco and other vegetable fats that haven't the same nutritive value or the same building value. It is important that they talk to our people about those problems and get them before them, and that is our job.

If we are to resume in accordance with the remarkably impressive address of our President, we are to resume leadership in our community and not merely be the servants of our people but help them to think right, live right, and live longer and more useful lives.

Preoperative Radium in Uterine Cancer.—At the Catania Institute seventy cases of cancer of the uterus have been treated with radium, with or without previous exposure to roentgen rays. In two cases, reported in full, clinical observation and microscopic examination of the lesions show that radium therapy may be followed by a complete clinical and anatomic cure. Radium brings about both the disappearance of the carcinomatous cells and the sterilization of the field. In threshold cases, preoperative radium therapy paves the way for total hysterectomy. In pelvic metastases, radium alone, followed by the knife, can secure results. Sterilization by radium prevents infection and obviates the need of Mikuiicz's drainage.

THE SURGICAL TREATMENT OF MENINGITIS WITH REPORT OF CASES.*

By R. G. Spurling, A. M., M. D., Louisville.

The following paragraphs attempt to deal with a new method of treating non-meningococcus meningitis; particularly meningitis due to the staphylococcus. Inasmuch as there is usually available a satisfactory immune serum for treatment of meningococcus meningitis, we have omitted this form from the discussion. However, it may later be found that these same principles are applicable to all forms of meningitis regardless of the etiological factor.

Surgical drainage of the subarchnoid space in cases of purulent meningitis have been reported by Dandy[1], Moise[2], Ball and Spurling[3] and others. The drainage site has usually been at the cisterna magna. Sachs[11]** has recently treated a series of eighteen cases of purulent meningitis by continuous drainage of the lumbar subarachnoid space. Good results from these methods of treatment have been recorded.

The observations here presented were made upon eight cases of meningeal infections treated by continuous cerebro-spinal fluid drainage. Except in one instance the drainage has been instituted at the lumbar subarachnoid space.

The procedure is as follows:

1. The lamina of the second lumbar vertebra is removed.
2. The dura mater is incised longitudinally for about an inch and the subarachnoid space entered.
3. A small gutta percha tissue drain is placed among the filaments of the cauda equina, and sutured to the cut edge of the dura mater with a single black silk stitch.
4. The operative wound is closed loosely in layers.
5. Fluid intake should be kept as high as possible—not lower than 5000 cc. per twenty-four hours. Fliuds may be given by mouth, hypodermically, by rectum, intravenously or intraperitoneally.
6. The dressing on the wound should be changed every four hours, (oftener if necessary) and strictest aseptic precautions observed.
7. Patient should be kept in a semi-recumbent position and may be changed from side to side as often as desired.
8. Drain should not be removed until meningeal symptoms have entirely subsided. Usually it will extrude itself about the tenth

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

day.

9. The wound closes spontaneously in from two to three weeks.

REPORT OF CASES.

Case 1. Adult Negro male, age 28, laborer, November 7, 1925.* This patient was brought to the Louisville City Hospital with a stab wound in the posterior cervical region. The stab wound in the mid-line extended about 6 cm. from the base of the skull downward. There was profuse bleeding and a mild degree of shock. The wound was closed in layers with dependent drainage.

For two days, the patient had an uneventful convalescence. On the third day, he was seized with a convulsion, which lasted for a few minutes and was followed by a severe headache. The dressing was found to be saturated with a clear watery discharge, coming from the upper angle of the wound.

The patient remained in good condition for the next twelve days. Temperature, pulse, respirations and blood pressure were essentially normal. The drainage of the spinal fluid continued to be profuse.

On the twelfth day, the temperature rose to 101, his headache became severe, and there was rigidity of the muscles of the neck and back. The fluid obtained from the drainage tract by way of a catheter was cloudy, and contained 400 cells. Lumbar puncture was performed, and the fluid obtained was turbid, containing 500 leukocytes, 60% being polymorphonuclear. Culture of the fluid showed the predominating organism to be staphylococcus and an unidentified gram-positive bacillus.

On the fifteenth day, the temperature rose to 103.6. The spinal fluid drainage continued to be profuse, and repeated bacteriological examinations showed the same types of organisms. The drainage from the cisterna magna was facilitated by sealing a glass catheter into the wound with collodion dressing.

On the seventeenth day, the temperature, pulse, and respirations were normal. The cells in the cerebro-spinal fluid gradually decreased.

On the nineteenth day, cerebro-spinal fluid drainage ceased. The symptoms entirely subsided, and the patient was discharged from the hospital on the twenty-first day apparently well.

Follow up note on the case shows that he is now in perfect health.

This is the only case of this series that was treated with cisternal drainage, and this was quite accidental.

Case 2. Adult white female, age 45, nurse, December 30, 1926. Patient suffered from what she thought was influenza early in December, 1926. The sickness was associated with malaise, pains in the back and legs, and persistent headache. Two weeks after the onset of these symptoms, the headaches became greatly exaggerated, and stiffness of the neck, back and legs was noted. Lumbar puncture showed a turbid fluid; cell count 1200, mostly polymorphonuclear. Cultures of the fluid showed staphylococcus aureus. The patient was treated with repeated lumbar punctures for two weeks, the fluid gradually growing more purulent. Repeated cultures showed staphylococcus aureus. During these two weeks, her general condition varied from extremis to a fairly satisfactory state.

Two days before we saw her at the Norton Memorial Infirmary, she had a sudden flare up of temperature with extreme rigidity and opisthotonos. Blood cultures on two occasions showed a positive growth of staphylococcus aureus. She was treated with two intravenous injections of mercurochrome. The third blood culture taken following the mercurochrome injections still showed a positive growth.

On the thirteenth day of her illness, and fourteen day after the diagnosis was made, continuous lumbar drainage was instituted. She drained profusely for the first three or four days, and her symptoms were greatly relieved. The drainage became less and less during the next two weeks, and stopped at the end of the third week. She was given three whole blood transfusions. At the end of the seventh week of her illness, the blood culture was negative. She had a stormy convalescence and was discharged from the hospital greatly improved four months after her admission.

Reports have come from her regularly, indicating that she has made slow and progressive improvement. In her last report on August 1, 1927, she states that she is in excellent health and will go back on nursing duty September 1.

The primary source of the meningitis was never determined.

Case 3. White adult female, aged 38, housewife. This patient entered the Louisville City Hospital March 15, 1927, with signs and symptoms typical of a spinal cord tumor at the level of the tenth dorsal segment. The lamina of the sixth and seventh dorsal vertebrae were removed. The dura was incised, and a tumor, apparently rising from the mininges, extruded itself into the wound. The tumor was carefully removed intact, and the wound closed without drainage. Microspocic section showed a typical meningioma.

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*This case previously reported: Annals of Surgery 85: p. 31, 1927.

**I am indebted to Professor Sachs for an introduction to this subject, as I had the privilege of seeing some of his results before I started this work.

On the third post-operative day, the temperature and pulse became elevated. The wound was examined and found to be infected. It was opened widely and Carrell Dakin tubes inserted. On the fifth day, the patient complained of headache and stiffness of the neck. Cisterna puncture revealed cloudy fluid, cultures of which showed staphylococcus aureus. The laminectomy wound was explored and the incision into the dura laid open. There was free drainage of cerebro-spinal fluid for forty-eight hours, but this gradually stopped. Her condition progressively became more alarming, and she died on the ninth postoperative day. Post-mortem examination was refused.

Case 4. White school girl, aged 15, June 6, 1927. This patient had been sick for eight weeks before we saw her. Her illness started with symptoms rather typical of influenza; malaise, pains in the back and limbs, and headache. Six weeks after the onset, she began to show signs of meningitis, i. e., severe headache, stiffness of the neck and legs and muscular twitchings. Lumbar puncture was done, and the fluid found to be turbid, containing 800 leukocytes, about 50% of which were polymorphonuclear. Culture of the fluid on several occasions showed staphylococcus albus. She was treated with daily lumbar punctures, and with many intravenous administrations of mercurochrome and urotropin.

At the time we saw her, the temperature was 103, pulse 120, neck rigid, Kernig positive, tendon reflexes abolished. There was generalized muscular twitching. She was taken to the Norton Memorial Infirmary, and continuous lumbar drainage instituted. The fluid drained profusely for the first three days, and her symptoms and signs improved remarkedly. The temperature stayed practically normal during this time.

On the fourth day, the drainage suddenly ceased, and her temperature rose to 104 with marked headache, stiffness of the neck, and muscular twitching.

Examination of the cranial nerves showed no evidence of marked increased intracranial pressure. The laminectomy wound was reopened, and a second lamina removed, but we were never able again to establish free drainage. Ventricular drainage was advised but refused. The patient grew slowly worse and succumbed sixteen days following her admission to the hospital. Postmortem examination was refused.

Case 5. White female child, aged 3 years. This child first came under observation at the Louisville City Hospital in September 1926. A diagnosis of pneumonia was made at that time. Following the pneumonia, she developed an empyema of the left thorax. This was treated by open drainage. She made a slow but uneventful convalescence.

Two months later, she was ready to be discharged from the hospital when she suddenly had a convulsion and lapsed into unconsciousness. Following this seizure, she had a well marked right hemiplegia. The paralysis cleared up slowly, but the patient would continue to have periods of vomiting, which were thought to be projectile in character.

About February 1, 1927, she developed symptoms of increased intracranial pressure. Neurological examination was sufficiently characteristic for a diagnosis of an abscess of the left cerebrum to be made with a fair degree of certainty. A left osteoplastic bone flap was turned down and a large abscess was demonstrated deep down in the left cerebral hemisphere. 130 cc. of thick creamy pus was removed by aspiration. Cultures showed the predominating organism to be staphylococcus aureus. Following the drainage of the abscess, symptoms entirely disappeared for one month, when she again developed intracranial tension. Through one of the burr holes, the abscess cavity was again aspirated, and 110 cc. of pus removed. At this time, a rubber catheter drain was left in the absecss cavity, through which purulent material was aspirated daily. The drain extroded itself after two weeks, and we felt that the patient was making a satisfactory progress. However, two weeks later, she again developed signs of increased pressure. Again the abscess cavity was aspirated; this time only 50 cc. of pus were removed. She was again free of symptoms for a period of three weeks, when she suddenly became unconscious and her temperature rose to 101, and the neck became stiff. Lumbar puncture revealed a fluid grossly purulent with 1200 cells. Culture from the fluid showed staphylococci. Lumbar subarachnoid drainage was instituted, and the patient drained spinal fluid profusely for two weeks. Her symptoms had entirely disappeared after the third day. The laminectomy wound healed spontaneously, and she has had no further symptoms or signs of meningitis. However, it has been necessary at fairly regular intervals to aspirate the abscess cavity in the cerebum. The size of the cavity has progressively decreased until at the last tapping, it held only 10 cc. of pus.

Just what the final outcome of this case will be we cannot say. The child is mentally alert, and has very little residual paralysis in the affected leg and arm.

Case 6. Adult white female, aged 45, housewife. Patient has been suffering from a hypertension for several years. On June 15, 1927, she was seized with weakness of the left side of the body. These symptoms came on gradually and were not associated with an acute collapse. Shortly after the onset of paralysis, she began to have terrific headaches. The headaches were unrelieved by any medication. The condition slowly improved. After the fifth day, there was a moderate elevation of temperature and pulse. She was taken to the St. Joseph's Infirmary. Lumbar puncture performed on the eighteenth day of her illness revealed an xanthochromic fluid under 250 millimeters of pressure. Leukocytes 30 per cu. m. Temperature at that time was 101, white blood cells, 31,600, 91% polymorphonuclear. Daily punctures were done for the relief of the headaches. The fluid remained clear on all occasions until the twenty-fifth day of her illness. At this time the spinal fluid became purulent, containing 1200 cells per cubic millimeter. Twelve hours before this puncture was made, the fluid was clear and contained only 40 cells per cubic millimeter. The usual signs of acute meningitis were present.

Lumbar drainage was instituted. Satisfactory drainage was never obtained, however, due presumably to a blocked cerebro-spinal circulation. Exploration of the right cerebrum revealed a dilated ventricle filled with purulent fluid. Two small abscesses were demonstrated in the middle of the parietal lobe. The patient succumbed on the twenty-eighth day of her illness.

The organism from all sources was thought to be either a micrococcus catarrhalis or staphylococcus aureus.

Our diagnosis in this case was multiple abscesses of the cerebrum following septic infarcts of the brain. One of the cerebral abscesses apparently ruptured into the ventricle and produced generalized meningitis.

Case 7, white Female child, aged 10 years.* This patient entered the Children's Free Hospital early in January, 1927 for the relief of spina bifida involving the lower lumbar vertebrae. She was operated upon by Dr. Orville Miller, January 31, 1927. Seven days later, infection in the wound was noted. This was promptly followed by meningeal symptoms of extreme severity. The wound was opened widely and cerebro-spinal fluid drained profusely. A rubber catheter was inserted into the depths of the wound to facilitate drainage. After drainage was established, the meningeal symptoms slowly cleared up. Culture of the fluid showed a heavy growth of staphylococcus aureus. Spinal fluid continued to drain for almost four weeks after which the wound closed spontaneously. No residual signs or symptoms remain except for a weakness of the external rectus muscle of the left eye.

Case 8, white female child, age 5 years. This patient was admitted to the Louisville City Hospital May 16, 1927. Five days before admission, the patient became very sleepy. The following day, she complained of headache and pain in the neck and along the spine. There were fever, loss of appetite, and general malaise. Four days after the onset of these symptoms, she was to weak to walk. She had difficulty in rising to her feet or in sitting down.

Examination showed the patient to be mentally alert; her neck was stiff and painful on flexion. The Kernig sign was positive. There was marked loss of strength in both the legs and arms. Tendon reflexes could not be elicited. Spinal fluid showed a cell count of 170, lymphocytes 70%. The flaccid paralysis rapidly increased in an ascending manner. On the sixth day of her illness the intercostal muscles were all paralyzed and apparently the right side of the diaphragm was immobile. The respirations were short and gasping.

Lumbar subarachnoid drainage was instituted. The patient drained profusely for three weeks, and closed spontaneously. Her symptoms became remarkably improved after the first twenty-four hours. Spinal fluid on the day of operation showed a cell count of 500.

On the fourth day after the operation she had fairly good use of the intercostal muscles, and the respiratory movements were free. The flaccid paralysis cleared up slowly.

Three months after the operation the patient was able to stand alone, to move all of her extremities well, and to breathe with no difficulty. The tendon reflexes are equal and active, and there is no sign as yet of muscular wasting. The right diaphragm, however, remains stationary. This undoubtedly represents a case of acute poliomyelitis with ascending paralysis, involving the respiratory muscles.

ANALYSIS OF DATA.

The aggregate mortality in this series of eight cases was 37.5%. If the case of acute poliomyelitis be omitted, the mortality was 42.5%. Of the cases who died, two of them were in desperate condition when treatment was instituted (cases 4 and 6).

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*Reported with the kind permission of Dr. Orville Miller.

In two instances, continuous drainage was begun two weeks or more after the meningeal symptoms appeared. One of these patients died and the other recovered.

Two cases of brain abscess were treated—In one instance, the abscess was a solitary one and aspiration was easily done; in the other, the abscesses were multiple, and satisfactory aspiration was never accomplished.

The four remaining cases suffered from acute meningitis. Three of these recovered (mortality of 25%).

DISCUSSION.

We believe that continuous subarachnoid drainage accomplishes a three fold purpose in the treatment of infections of the meninges and central nervous organs.

(1) A port of exit is afforded for the drainage of inflammatory products, which otherwise would be confined in a more or less closed chamber under varying degrees of pressure.

(2) Pressure within the cranial and spinal bony cavities is reduced by the continuous drainage of fluid from the cerebro-spinal space.

(3) Dilution of the toxins and other products of the inflammation is accomplished by the continuous lavaging of the central nervous organs.

The first premise is obviously true. All recognize the value of repeated lumbar puncture in these conditions. This treatment merely goes a step further and provides a continuous drainage instead of an intermittent one.

The second premise is doubtless correct: that pressure within the cranial and spinal bony cavities is reduced by the continuous drainage of fluid from the cerebro-spinal space. Kubie(10) has demonstrated this conclusively on experimental animals. Just what part mechanical pressure plays in the course of the disease is unknown. Certainly we know that the fluid pressure is all forms of meningitis is greatly elevated; often registering as high as 350-400 mm. of spinal fluid. That the increased pressure is responsible for the terrific headache experienced by most of these patients is attested to by the fact that this symptom is often entirely relieved temporarily by lumbar puncture. We do know that these patients are comfortable beyond belief as long as there is a free flow of cerebrospinal fluid.

The third premise seems to be a logical one: that there is dilution of the toxins and other products of inflammation by the continuous lavaging of the central nervous organs. It is well known, from experimental evidence, that the cerebro-spinal fluid pressure changes with the variations in the specific gravity of the circulating blood. Thus, if hypertonic solutions are added to the blood stream, there is a prompt fall in cerebro-spinal fluid pressure. Conversly, if hypotonic solutions are added to the blood stream, a prompt rise of the cerebro-spinal fluid pressure follows. There is also experimental proof to indicate that the water content of the cerebro-spinal fluid itself changes with the variations in concentration of the blood (4). When the fluid intake of the body is kept at a high level, the specific gravity of the blood remains low, and the cerebro-spinal fluid pressure undoubtedly becomes elevated. Presumably the water content of the fluid itself increases under such conditions. If in addition to the above conditions, one facilitates the disposal of cerebro-spinal fluid by artificial drainage, the natural assumption would be that there is an increased production of fluid which drains away as promptly as it is formed. The experimental work of Kubie[10] is in accord with the above statement.

Normally, the amount of cerebro-spinal fluid in the entire system does not exceed 80 cc. Observations on one case showed a daily drainage of 400 cc. per twenty-four hours, when the fluid intake of the body was at a normal level. When fluids are forced to a high level, there should be from two to three times that amount drained away each twenty-four hours. We have no accurate figures to report upon the daily amount of cerebro-spinal fluid drainage, but from rough calculations we feel certain that at least 1000 cc. are lost when the fluid intake is around 5000 cc. in twenty-four hours. We have observed an increase in the urinary output after the spinal drainage tract has closed when the fluid intake has remained practically stationary.

Thus, with a high fluid intake and a corresponding increase in the cerebro-spinal fluid production and drainage, the effect upon the central nervous organs is one of a continuous lavage.

It becomes self evident that adequate drainage of the cerebro-spinal fluid space can be accomplished only as long as there is free communication between the ventricular system, the cerebral and spinal subarachnoid space. Perhaps it might not be amiss to refer to the diagram of the normal cerebrospinal spaces and indicate the normal pathways. One readily sees that the most vulnerable spot, from the standpoint of a block developing, is in the region of the roof of the fourth ventricle. Of course if the infection has invaded the ventricles and the tiny foramina are plugged with exudate, drainage of the subarachnoid space accomplishes nothing. Should these crevices become blocked after drainage has been instituted, then our principle of treatment is bound to fail. If one could establish with certainty that such a block has occurred during the course of treatment of a case, we believe that drainage of the ventricle would be justified. It is very difficult, however, to arrive at a logical conclusion regarding a blocked circulation after continuous drainage has been instituted. It is true that the amount of drainage has been greatly diminished in four of our cases, yet signs of increasing intracranial pressure, like one would expect with a fourth ventricle block, never developed. We were inclined at first to think the decreased fluid output was due to inflammatory exudate coating the choroid plexus and interfering with fluid production. Unfortunately we have been unable to secure autopsy permission on our fatal cases, so these details will of necessity have to be worked out later.

There is considerable question as to the most favorable spot for the promotion of the subarachnoid drainage. Dandy[1] and others recommend the placing of a drain in the cisterna magna. We feel that lumbar drainage has certain advantages over this method from theoretical and practical standpoints. It seems reasonable, that placing a foreign body, like a drain must of necessity be into the cisterna would tend to promote blocking of the foramina by an accumulation of inflammatory products around the drainage tract.

It has also been suggested that lumbar drainage offers the most favorabel site for dependent drainage. We feel this argument is probably wrong. The cisterna magna offers the most dependent drainage site inasmuch as it is the central connection point between the ventricular, cerebral and spinal subarachnoid system. Undoubtedly one can obtain more complete drainage of the three systems at this location.

From a practical standpoint, lumbar drainage is far simpler technically than cisterna drainage. Many of these cases are critically ill and will withstand operative procedures poorly.. Lumbar drainage under normal conditions should only require fifteen to twenty minutes and is easily done under novocaine anesthesia. It should be a simple harmless procedure if one is well acquainted with the anatomy and has had some experience in surgery of the spine.

Some will naturally make exception to our including the case of acute poliomyelitis in this series, believing that the virus of this disease attacks the anterior horn cells primarily, and does not produce a generalized inflammatory reaction of the central nervous organs. This conception, however, has been shown by many (Flexner, Clark, Amoss[9] and others) to be false. The extensive investigations of the Rockefeller Institute group on acute poliomyelitis show rather conclusively that the virus of poliomyelitis possesses no specific affinity for any group of nerve cells as such, but causes wide-spread inflammatory reaction indifferently upon the nervous cells, and the non-nervous elements within the nervous organs. In fact, one of the most striking pathological features of the disease is the early involvement of the leptomeninges. All observers have recognized the accompanying edema of the nervous tissues in acute poliomyelitis. Meltzer[8] went so far as to suggest the use of adrenalin intraspinally during the acute stage with the idea of lessening the congestion. Aycock and Amoss[6], Smith[5], and others have employed hypertonic solutions intravenously with the idea of reducing the edema of the cord. Montgomery and Cole[7] have strongly advocated repeated early lumbar punctures in the course of the acute stage of the disease.

Just what continuous cerebro-spinal fluid drainage is going to mean in the treatment of acute poliomyelitis, we make no attempt to prophecy. Sufficient to say, one case, obviously in a critical condition, was apparently greatly benefited by its use. Nor is any attempt made to prophecy to what extent this treatment may be applicable to infections in general of the central nervous system. We must regard the procedure as being still in the experimental stage. For instance, we are not at all convinced that lumbar drainage is preferable to cisterna drainage. As a matter of fact, in desperate cases, it may be found that drainage of all three loci i. e., the spinal subarachnoid space, the cisterna magna, and the lateral ventricle, may be efficacious when any one of them alone might fail.

One should expect cases of meningitis due to streptococcus to do well with this type of treatment, inasmuch as the exudate usually remains thin. Pneumococcic meningitis will probably always remain extremely difficult to handle, because of the fact that such thick tenacious exudate is formed. Certainly in this cases, drainage from more than one of the loci may be indicated. Tuberculous meningitis on the face of it seems to be hopeless, inasmuch as the disease is usually widespread, and the meningeal manifestations only appear in the terminal stages. Should a case of tuberculous meningitis appear, however, in a patient without signs of generalized tuberculosis, I see no contra-indication to instituting drainage.

This whole subject of continuous cerebrospinal fluid drainage opens up many new fields for research. Perhaps we may have to change our present ideas regarding the barrier offered by the choroid plexus to certain substances, particularly drugs.

Summary.

(1) Eight cases of infections of the central nervous organs have been treated by continuous cerebro-spinal drainage.

(2) 62.5% of these cases have recovered:

(3) We believe that subarachnoid drainage accomplishes a three-fold purpose in the treatment of infections of the meninges and central nervous organs.

(a) A port of exit is afforded for the drainage of inflammatory products, which otherwise would be confined in a more or less closed chamber under varying degrees of pressure.

(b) Pressure within the cranial and spinal bony cavities is reduced.

(c) Dilution of the toxins and other products of the inflammation is accomplished by the continuous lavaging of the central nervous organs.

(3) The principles underlying this method of treatment seem to be scientifically sound.

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DISCUSSION.

W. E. Gardner, Louisville: Dr. Spurling has presented to us a very interesting and instructive paper and has brought forward what we might say is a new method of treatment of meningitis, particularly the staphylococcus type of meningitis.

We know that the symptoms of meningitis have various forms, and once well established are all very similar. That is, we are likely to have headache, stupor, signs of increased intercranial involvement, perhaps some involvement of the cranial nerves, usually spasticity with exaggerated reflexes, and so forth; and it is only by a study of the spinal fluid that we are usually able to make a differentiation between the various forms of meningitis.

This is important: Sometimes the particular organism can be isolated, sometimes it cannot. It is also true that in suspected cases of meningitis and poliomyelitis, that is initial meningitis, that numerous studies of the spinal fluid are made and sometimes spinal drainage is instituted in the treatment of poliomyelitis and encephalitis. I am just wonderng if in some of these cases where frequent spinal punctures have been made, not only for diagnostic reasons but for drainage if the subarchnoid space, there is a possibility that we may contaminate some of these cases and produce staphylococcus meningitis.

I should like to have Dr. Spurling state, in closing, if the two cases he referred to showed symptoms of meningitis before diagnosis of staphylococcus meningitis, if there had been a series of spinal punctures made and whether or not there was a possibility of contamination taking place, and whether the cases may not have originally been another form of meningitis. It is hard to conceive of a patient being ill, possibly extremely ill for a period of several weeks with a staphylococcus meningitis before he was called to operate.

I am inclined to believe we perhaps do spinal drainage a little bit too frequently sometimes, and I believe we should be careful of our technique. I have therefore favored the rather free use of spinal drainage by spinal puncture in cases of encephalitis, meningococcus meningitis, and poliomyelitis, and I am beginning to wonder if perhaps there isn't some danger that we may carry this procedure too far, and if some such continuous drainage as Dr. Spurling has advocated in his paper may not be preferable to too much repetition of spinal drainage by spinal puncture.

These cases that he has reported have been extremely interesting and I think his rate of mortality has been remarkably low considering the cases. This work , as I say, is comparatively new and Dr. Spurling is somewhat of a pioneer in it as far as the community about Louisville is concerned, and I shall follow his work with a great deal of interest in this particular class of cases.

He has reported a case of poliomyelitis. The treatment of this case of poliomyelitis is, of course, unique, and he seems to have had an ascending form of poliomyelitis which possibly would have gone into, if it had not already become polioencephalitis, and I think it is probable that the establishment of continuous spinal drainage here may have been of benefit in this case. Yet we must bear in mind in some of these cases which resemble Landry's paralysis, some of the severer types of poliomyelitis, there are exceptional instances where we do have recovery without any particular form of interference. The residual symptoms about the chest and diaphragm would indicate, in the case he reported, that the disease had spent its force in those segments of the cord supplying this area, and perhaps after all the superior involvement might not have been as serious as it appeared to be. At any rate the case survived and he got good results, and I think we certainly should be inclined to give the credit to the benefit of this operation in this case.

I enjoyed this paper very much and shall watch with a great deal of interest the further progress of cases of staphylococcus meningitis treated by this method of continuous drainage which Dr. Spurling is, for the time being, inclined to restrict his method to, although he may find the operation is applicable to other forms of meningitis in which proper specific serum cannot be used.

Orville Miller, Louisville: I lay no claims to surgery of the central nervous system, but I merely want to bear witness to the work of Dr. Spurling. I have seen some of these cases and the results he has gotten, and to my mind the cases that have made recovery are nothing short of miraculous.

One remarkable thing to me is the immense amount of drainage of the cerebral spinal fluid. These patients will lie in what seems to be a pool of cerebral spinal fluid and yet as long as plenty of fluid is given them by hypodermocylsis and enforced intake of fluid, it seems to manufacture just as rapidly as it is lost.

The case he reported of mine was one which only by accident I came to handle. I have since asked Dr. Spurling to see cass of tuberculous meningitis. One case in particular that I was interested in and hoped he would operate on, was a case of secondary to Pott's disease. The location of the disease was such that he felt it wouldn't be advisable to operate on the patient.

I am very interested, too, to follow his work especially with reference to infantile paralysis and to tuberculous meningitis.

A T. McCormack, Louisville: I want to congratulate those of you who are here on hearing this paper. We have always found, on the late afternoon of the third day, we have these splendid messages coming and as the members of the Association read this in the Journal I am sure they will regret having missed it. I hope very much from year to year you will spread the gospel that on the third day we do have some of the most important papers. The essayists on the third day, in the arrangement of the committee on scientific work, get their papers in on this day, but it doesn't mean for a moment that they are not important papers. I don't think more important messages have come before the Association for years than this communication of Dr. Spurling's.

I recall very vididly, just a short time before his death, I was in New York and saw Dr. Harley who had done so much for brain surgery. I went over for old times' sake to see his working in his class in operative surgery on the cadaver and he was doing this very thing. He said he believed, with the necessary device, it was going to mean a new era n infectious surgery of the subarachnoid space. It appeals to reason, as Dr. Zimmerman has so well explained.

It is the drainage, not merely drainage of itself which would be almost of no value, but the drainage forced through is of tremendous value. It is the same principle we use in the construction of septic tanks. It is the same principle we are using in engineering constantly in all of our sanitary works. It appeals to your reason, and

I look forward to seeing it have a wonderful field of application.

In seeing the cases of poliomyelitis that I have seen during this epidemic, quite a number of them have impressed me as having a large part of their immediate danger coming from edema and pressure symptoms above the area where the greatest damage was being done, and that life was lost because of the acute edema and the acute pressure symptoms where it seems to me such procedure as this would be indicated, and such drainage as that would promise greater relief. As Dr. Gardner has pointed out, in so many of these cases they go on to recovery anyhow.

If we can lend some advantageous aid early in the case and can get such drainage established it appeals to your reason that you would want to adopt such a procedure with a patient of your own.

I am sure, Mr. President, the Association will excuse me for this occasional revision of type. Primarily I am a surgeon. I never hear a surgical paper read, whatever I know on the subject, that I don't enjoy the play of mind as called into force as one considers the principles underlying these great developing procedures that are going to make life safer and happier as we go along. It is a pleasure to recognize in such a message as this another adaptation, another revelation of the eternal plan that when we find we shall all be able to restore health, and perform what seem to be to us, from time to time, miracles but are merely always the unfolding of the eternal pain.

R. Glenn Spurling, (in closing): I want to thank you all very kindly for your discussion.

Regarding Dr. Gardner's question about the possibility of contamination in these two cases of chronic staphylococcic meningitis, I can't say as to one, but I do know in one instance—I won't even say that for an absolute fact—but I feel sure that in one case there was no contamination. The other I am not sure about.

The question of the danger of contamination as compared to repeated puncture and continued drainage: I don't know. I have never seen an infection of meningitis follow lumbar puncture. I know it happens. I have just been fortunate not to have had it happen myself, nor to have seen it happen to others. I feel certain, however, if it comes down to a question of possibility of infecting the meninges they are safer with repeated lumbar punctures than by continuous drainage simply because if you make an incision into the skin, as we all know, we have a potential contamination of any wound. However, I think the possibility of secondary infection, if the wound is properly care for, is no greater than if you operate on a clean wound, probably less so because everything there is draining outward.

I am very glad Dr. Zimmerman brought out the point which I overlooked and should have mentioned, and that is when we have involvement of the cerebral subarachnoid space, we stand a pretty poor chance of getting adequate drainage no matter where we put a drain.

INDICATIONS FOR, AND TECHNIQUE OF, DELIVERY BY THE NORMAL PASSAGES.*

By Walker Gossett, M. D., Louisville.

When the speaker started to prepare this paper he was at a loss just how to handle the subject. Finally decided to tell you just how I care for my own cases, leaving you to modify the various methods to suit your own needs and surroundings.

As you probably know I never deliver the patient in her own home, except under the most unusual circumstances.

The speaker wants to first get this before you, that the laity is ignorant of the seriousness and importance of child-birth.

Educate your patients to place themselves under your care as soon as they believe themselves to be pergnant. Educate your people that you will not attend a labor case unless you have been engaged some time before confinement. You can give many good practical reasons for this advice. The patient calls at your office to engage you to attend her. Now at this time make your first examination. Take history of her case, physical examination, externally and internally, and pelvic measurements are taken if she is a primipara. Note position of the uterus. Later on, about two weeks before time of confinement, if you suspect a large baby, have an x-ray picture taken and compare the size of the baby's head with the pelvis, especially the inlet.

By the x-ray you are able to detect presentation and position of the baby, and anomalies of the bony pelvis, and the presence or absence of deformity in general.

As soon as the patient is known to be in labor she is ordered to the hospital. On arrival there the nurse immediately begins to prepare her for labor. This preparation consists of shaving the pubes and vulva. Before shaving, the vula and surrounding parts are drenched with a one percent solution of lysol, then the parts are thoroughly soaped, then shaved, being careful to keep any lather out of the vaginal opening. The strokes of the razor should be downward and outward. Soap is washed off with sterile water and the *clitoris* cleansed of all smegma, this is very important, and if the nurse has not been instructed to push back the hood of the clitoris, you will find some smegma present when you make your first examination. Sometimes oil or albolene, soaked on an applicator will be necessary to remove this smegma or just the sterile liquid soap. If there is time a shower bath is given. An enema is now given and the patient allowed to use the bed pan or commode. The parts are again washed with soap and water and followed by a mild lysol solution. The patient is instructed not to touch the parts. She is now ready for your first examination. My hands are thoroughly scrubbed and an external examination is made, and foetal heart sounds noted. This is for diagnosis of the presentation and position of the baby. The speaker has come to depend a great deal upon the foetal heart sounds for determining the presentation and position.

After this external examination, the hands are again thoroughly scrubbed, then a rubber glove is used. No internal examination should be made without using gloves. Generally only one glove is necessary. In each sterile package we have a sterile towel and glove. The towel is used to assist in putting on the glove.

Right here I wish to emphasize the use of sterile rubber gloves. Every physician should use them. Even in the country, a physician at the cross-roads can supply himself with rubber gloves, and they are easily sterilized at the home of the patient, as the speaker has done many a time.

Now we shall refer back to our first internal examination. Make it thorough. If possible make out your presentation and position of the baby and the extent of the dilitation of the cervix. It is difficult for the speaker to suggest just how many examinations should be made, but sufficient to keep in touch with the progress of the labor. As for myself I depend largely upon the extent of the dilatation of the cervix, because as soon as the cervix is about two-thirds or three-fourths dilated and dilatable, the patient is now taken into the delivery room and under nitrous-oxid gas the dilitation is completed, saving your patient many pains.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

During the first stage to allay my patient's pain and nervousness, she is given one or two doses of ten grains of chloretone. The powder is placed on the back of her tongue and washed down by a glass of hot water. Have had some splendid results from the use of this powder. Morphine grain one-sixth with sulphate of magnesia may be used, and a great deal is now being written concerning its use.

The speaker believes more depends upon yourself as to how your patient conducts herself during the first stage. During the first stage my patient is kept in bed, sometimes propped up in bed, or sitting in a chair by the side of the bed. She is no longer permitted to walk about and tire herself out as was formerly the custom. When the speaker thinks of the number of women he has kept on their feet, bending over the foot of the bed or back of a chair with pain, not permitting them to lie down, using their abdominal muscles and wearing themselves out before the second stage—gentlemen, it was a big mistake, but we knew no better.

Now during the first stage, my patient, as a rule, is put to bed, no pulling on the sheet or straps, but is instructed that when the pain starts, to take a deep breath and hold it, clinch the hands by her sides, if pain is long and she must breathe again, then take another deep breath and hold it. This procedure is followed until she is taken into the delivery room.

I find they are anxious to help in this stage so they may get their gas in the second stage. They cooperate with me very nicely.

My patient is now in the delivery room. Nitrous-oxid gas is used. It is needless to go into its use as the speaker has written several papers upon nitrous-oxid gas in obstetrics and is still enthusiastic about it.

In the delivery room all aseptic precautions are taken the same as for a major operation. Now long gaunlet rubber gloves are used. If the patient has not recently voided, catheterize.

The patient is now allowed to pull on the straps alongside of the delivery table and bear down, bringing into action the abdominal muscles, which have not been worn out during the first stage.

After complete dilitation of the cervix the membranes are ruptured, and this is done generally about the middle of the pain. The perineum is massaged and stretched, ironed out. KY jelly or some ointment a little heavier is used. By the way, the scientific committee of Park, Davis & Co. is working on my idea of placing a product on the market for the specific purpose of massaging the perineum for the purpose of softening the tissues and increasing the resiliency of the parts.

How to prevent a perineal tear? The only way I know of at present is first massaging and stretching the perineum, and supporting the perineum and head as the head is being born, allowing it to be born slowly, sometimes letting it slip out during a pain and sometimes interval of pain. The speaker never examines or work per rectum, but often makes pressure just back of the rectum to deliver the head.

The baby is delivered, placed on its right side and as a rule gas is discontinued and pure oxygen administered to the mother for a short time. Generally in fifteen or twenty minutes the placenta is delivered by a modified Crede's method and immediately, in all cases, a hypodermic of 1 cc. ampule of aseptic ergot is given. Examine the placenta thoroughly in each and every case, to see if any part has been retained.

Perineum is now examined and if any tear, if only one suture is needed, it is taken. The speaker has had some very bad second degree tears and has been surprised as to the excellent results obtained, when not expected. Deep sutures are taken. Be sure to get the muscles. No crochet work is lone. Abdominal binder placed on in the delivery room and patient taken to her room. Plain sterile water is used for cleansing the perineum after each voiding of urine. Have discontinued antiseptic solutions. Some are allowed to get up to the commode even with a perineal tear. Bed pan is used for a few days in some cases You must be the judge. I want my drainage by getting up to the commode, and if the perineal sutures have been well placed and deep, not too tightly drawn, getting up to the commode, with the assistance of the nurse, will cause no trouble.

Patients that have no tear are ordered up to the commode. On the morning of the second day castor oil is given. Third day the abdominal binder is removed and patient given bed exercise. Not permitted to lie on her back for any length of time, but on either side, and even on abdomen. Patient is kept in bed for ten days. Knee-chest position is now advised, and this is kept up twice daily for the next six weeks or two months. Movements of bowels at least every other day. Light diet for the first twenty-four hours, then good vegetables, soups, teas, milk, ice cream, very little meat.

Engorged breasts are treated by placing on a binder, or a brassiere which opens in front, with darts underneath, making a better fitting brassiere and support. Ice bag used several times daily. The nipples are no longer washed with boric acid solution as a routine. After each nursing the nipples are simply dried with a piece of gauze . Tender nipples or cracked ones, are immediately treated with the following ointment, and this ointment has been used for the past two years at the St. Joseph Infirmary as a routine for such conditions.

Tr. Arnica one dram, Tr. Benzoin Comp. one dram, white vaseline sufficient to make one ounce. This should be mixed with a spatula on tile or glass. Do not let the druggist mix in a mortar. Breaks up better and goes into your vaseline better. This ointment is applied to the nipples on a piece of gauze after each nursing. Left on until the next nursing and then the nipples are washed with a boric acid solution before the baby is allowed to nurse again. Sometimes for a day or two a nipple shield is used.

Patients are allowed to leave the hospital in two weeks, instructed for the next two weeks to be a semi-invalid, just attend to her baby. The next two weeks about the house, from six to eight weeks about the neighborhood and after the eighth week resume regular duties. Four weeks after the delivery she is allowed to take an automobile ride. Instructed after eight weeks to call at the office for an examination.

In cases of boy babies, a dorsal incision is made in all cases between the eighth and tenth days, if the prepuce is not easily retracted.

DISCUSSIONS.

J. T. Reddick, Paducah: I consider myself complimented by being asked to lead the discussion on the papers by Dr. Pickett and Dr. Gossett.

In the main I thoroughly agree with Dr. Gossett and to a very great extent I follow his method of delivery. The practice of obstetrics is very different in many ways from the time I began and the way I was taught. I had what was considered a most excellent teacher of obstetrics, and yet we were taught then never to expose the patient for any kind of examination. I was taught to use the forceps under the cover, and I was taught to even use the catheter under the cover. We were taught and told that it was an evidence of good practice to introduce the catheter in the female bladder without exposing the patient.

There has been a great change since that time and I have tried to keep up with these changes. I tell my brother practitioners sometimes that the doctors that graduated way back years ago are at a great disadvantage. We have to unlearn a great many things that we learned. If we keep up with the procession we have to keep in step and it makes us study all the time, and I have always done that.

Dr. Gossett informs us that practically all of his obstetrical cases are done in the hospital. I want to congratulate him. He is indeed fortunate that he has a clientele that permits him to do his work that way. I wish I could. In fact, it is an ideal way of doing obstetrics.

My work has been varied. My work has been done in modern, well-equipped hospitals, elegant homes, shacks in the back alley, log cabins out in the woods, a one-room tenement house in the middle of the field, the last house up the creek, and one case I had in a gypsy tent on the ground with nothing between the patient and the ground except a little piece of matting and pouring down rain on the outside. That patient got up in less than twenty-four hours, got on the gypsy wagon and drove down to Paducah where she took a boat for Cairo. That was the last I heard of her. I presume she got along all right. She had had several children.

For economic reasons all babies cannot be born in hospitals. It costs too much, and as Dr. Pusey of Chicago said two years ago in that masterful address in Louisville. it puts too big a tax on the bringing of babies into the world.

Some of us have to do work in houses that are ill prepared for this work. The laity has been woefully ignorant, and I say that with all due respect to the laity, in past years regarding the importance of obstetrical work. But through the better education of doctors, the education of obstetricians, the propaganda of prenatal care that is and has been carried out in our state and other parts of the country for a number of years, the importance of the various complications in pregnancies such as early and late toxemias, cardiac affections, focal infections and other measures, we would see a marked reduction in a few years in the mortality and morbidity of the pregnant women.

Dr. Gossett stresses the importance of history taking, and while I would minimize the importance of history taking it is not so essential in small cities and rural communities for it is often the case that the obstetrician in those cases knows his patient from childhood, and has had the medical care of the patient from childhood. He knows the peculiarities and the idiosyncrasies of that patient often better than she knows them herself. In those cases, I say, it is not so important to take the history because we already have them.

In the immediate preparation of the patient as she goes into the lying-in room I agree with Dr. Gossett. I determine presentation and position by vaginal examination. I don't make rectal examinations as has been taught and advocated by a great many obstetricians.

Dr. Gossett says do not let the patient walk. I think it sometimes does them good. You can't keep them from walking sometimes. You take a strong, healthy, vigorous, muscular person, she will want to walk until the pain comes on, then hold on to something and get red in the face. She doesn't want to go to bed. I don't think it does them any harm. I prefer to have those patients to those whining, complaining, peevish, rolling and tossing patients you can't do anything with, and you can't control them by anything you might say. In fact, I really believe that kind of patient often has an endocrine disturbance that is responsibile for the condition.

I agree regarding the massage and stretching of the perineum. One thing he did not mention that I do is the application of a sterile hot towel to the perineum at the time of the intense bearing down pains and the stretching takes place. I think you can control the perineum to a great extent by that measure.

He did not mention episiotomy or the division of the perineum muscles by scissors or knife, which also has been advocated extensively. I do not do that. I never had occasion but one time to do that and that was in a case where there had been a previous extensive tear of the perineum and a marked cicatricial tissue in which there was absolutely almost no stretching, and I felt compelled to do that. It proved very satisfactory, but as a routine method I don't think it is the proper thing to do. There are not many cases that the perineum does not stretch to allow the passage of the child.

I agree with Dr. Gossett that all tears of the perineum should be repaired even to the most insignificant tear. It is our duty as obstetricians to leave our patients in as nearly a normal conditon as possible, the condition she was in before the baby was born. That is the duty of the obstetrician.

Dr. Gossett gives one cc. of ergot in all cases. I do not. I only give ergot where it is indicated, where there is postpartum hemorrhage or a sluggish, inactive uterine muscle. As a routine measure I do not use ergot.

I prefer as he does, to have my patients get up to the commode or slop jar to void urine and bowel movements. It gives drainage, and I am thoroughly convinced that there is less danger of contamination of a perineum wound by having your patient sit up. If they are on the bedpan it drains on the perineum wound and you get infection. If they sit up they can be protected by a piece of gauze or cotton, and I think that is the better practice.

It used to be taught, when I was a young man, that a patient with a lacerated perineum should be kept absolutely quiet, and some of the old doctors used to tie their legs together. I think if you take hold of the limbs of the patient and stretch them as far as you could, you couldn't lacerate that any more or even separate it.

There is one more topic, the use of the x-ray. He advocates the use of the x-ray in some cases. Of course that is impractical in small town practice. We haven't the x-ray and if you begin to talk about a thing of that kind they will say, "Oh, get Dr. So-and-so, he is a good baby doctor and we will let that highfaulting doctor go."

L. T. Minish, Frankfort: I have listened with a great deal of interest this morning to these three most xcellent papers and feel that I have been fully repaid for my visit to Owensboro to attend this meeting.

The subject of obstetrics is one that I have been very much interested in for the past three or four years, especially since I have been making more or less of a specialty of obstetrics.

I haven't any adverse criticism to make of Dr. Gossett's paper. I only want to emphasize some of the high points. First, educating the patients to consult you early in pregnancy. This, I think, is very important because with the methods of examination; blood pressure taking, pelvic measurements, urinalysis, etc., we are kept constantly in touch and we are masters of the situation all the time, and by doing this we are enabled to know whether our patients can be delivered through the natural channel.

The second point is the thorough preparing of the patient for delivery, and a thorough cleansing and preparing your hands for the first examination and successive examinations.

The third point is reducing the suffering to a minimum which can be done by the proper use of anodynes and anesthetics. For the past three or four years I have been using the so-called synergistic methods with most excellent results. You are all familiar with this method, one-eighth to one-sixth of a grain of morphine given in the early stages with 2 cc.'s of a fifty per cent sterile salts solution intramuscularly. Of course this is only in the slow, lingering early stages. After you get two or three fingers dilatation and you see that your patient is going slowly and not being relieved by the morphine, and the second dose of the 2cc. fifty per cent salt solution intramuscularly injected, then I throw into the colon two and one-half ounces of ether with ten grains hydrochloride of quinine, a dram of alcohol and olive oil to make four ounces. This, in my experience, has invariably quieted the patient and carried her through most of the first stage of labor.

Like Dr. Gossett, after the cervix is dilated to two-thirds or three-fourths I give an anesthetics and complete the dilatation.

We cannot all have nitrous-oxid gas anesthesia but we can all have ether or chloroform.

In most of my hospital work I use ether. In my home cases I use chloroform because I have to depend upon some inexperienced person to administer the anesthetic.

After completing the dilatation and at the same time ironing out the perineum, preparing for the second stage, the patient is allowed to drift out from under the influence of the anesthetic and as a rule the pains will be sufficiently strong to complete the delivery.

Fourth, preventing perineal tears. I use the methods outlined by Dr. Gossett, and if I see that a tear is inevitable I do an episiotomy. I believe I use this method in ten or fifteen per cent of my cases to prevent perineal tears and I have never yet regretted doing a episiotomy. They will heal by first intention and you have to do very little cutting to deliver the head.

Fifth, after the third stage is completed I use one cc. of pituitary extract intramuscularly, and if the occasion demands I give one cc. of aseptic ergot along with this.

Like Dr. Gossett, if I have a tear and it needs only one suture, that suture is placed.

Sixth, the after care is quite important. I follow the methods outlined by Dr. Gossett.

G. G. Thornton, Lebanon: The essayist is a man who confines his practice to the hospital. The two men who have just preceded me divide their practice between the hospital and the home, and I represent the man who devotes his attention and has devoted his entire practice to the home. Therefore, I represent the crossroads doctor.

From the statistics of the Louisville City Hospital I would infer that possibly out of the 60,000 to 65,000 deliveries in Kentucky annually possibly 2000 are delivered in the hospitals. The essayist was an idealist and he certainly is fortunate in having ideal patients with ideal surroundings, with ideal assistants, who pay, I suppose, ideal fees, and whose results are ideal.

I would have thought all had been ideal had it not been for the fact that he let one little statement slip that "spilled the beans," If you will recall, he said he had often seen lacerations of the second stage where the results, much to his surprise—maybe I am making that a little strong—were excellent. I want to say to you that I should be surprised if the results were not almost perfect in a country practice without ideal assistants. The surprise is just the other way in my cases.

I should have very much appreciated it if the doctor had given something of his results beside that little hint. I should like to have known about how many deliveries he has had in the last twenty-five years. I should like to have known, and I hope he will tell us, whether in the last twenty-five years he has had a case of puerperal sepsis. I should like to have known about how many cases of puerperal eclampsia he has attended. I should like to have known these things as they would have been enlightening.

So far as I am concerned, practicing amongst the country people some of whom are the same kind that exist in the cities, in twenty-five years I have had only one case of puerperal sepsis and that case recovered. That was one case out of 2000 cases.

I can go a little bit further. I can give just a little bit better statistics in regard to the mortality. My mortality I am perfectly sure, speaking only from memory, in the last 2000 cases from all causes has not been as high as the hospital mortality at the City Hospital of five. My mortality has been less than that. I am perfectly willing to admit that I have had patients where my mortality ought not be so high as the lower class, but I am egotistical enough to assume that part of my results have been due to my skill and my management of the cases.

There was one thing I noticed about the doctor's paper, and I suppose that it is due to the fact that he is speaking of the management of cases in the hospital. It is barely possible that his culture and training and teaching and management of his patients has made some of the things that we use in obstetrical practice in the country useless in the hospital under his management. He has failed to mention them, either to condemn them or to commend them. Therefore, I suppose in the hospital he ignores them.

I don't know whether that is the case or not, but in the country chloroform is our anesthesia for the later stages, and it is perfectly safe. I give it to every woman who wants it. Not all of them want it and not all of them need it, but to every woman who wants it I will give it to the obstetrical degree, and I have seen no reason why I should look for anything better. The gas anesthesia is an impossibility for the country doctor, and therefore this paper is really not for the men who deliver the twenty-nine out of thirty deliveries that are made in the state of Kentucky.

Another important element that he fails to mention is pituitrin. I don't know whether the doctors who discussed his paper mentioned pituitrin in the discussion. Pituitrin has been abused, but I want to say that it has been a godsend not only to the doctor but also to the woman. In the case where the cervix is dilated and where there is nothing to obstruct delivery and the pains are lagging, and you have to take up that attitude of watchful waiting, in my estimation there is nothing that is more dependable, although sometimes it fails. Bear in mind that my experience has taught me that two, three or four minims should be the maximum dose at first, but I have seen as many as two cc.'s givn in a case of placenta previa where I failed to get any effect at all.

Another thing, I don't suppose he has any puerperal convulsions in the hospital and therefore he failed to mention veratrum viride. I say to you men that my experience with veratrum viride has been perfectly satisfactory administered hypodermically when the convulsions are on and everybody has lost his or her head and death is impending. You want to do something and you give veratrine, from one-tenth to one-fifteenth gr. hyperdermically. I try one thing after another and try them rapidly because I want to save the life, and up to the present time I have saved the life of all my patients from this spectacular condition.

Another thing that he doesn't mention is morphine. Not all cases need it, but when you have a case where the first pains are ineffective and seem to be doing no good, give that woman a quarter of a grain or an eighth of a grain of morphia and two-hundredths of grain hyoscin. Let her go to sleep, as I have seen them do, while the cervix is being dilated and delivery comes, but don't give morphine and hyoscin where you think the case is going to be over soon. The effects are too lasting, this is where you want to give the chloroform.

He also omitted to say anything about glucose, that new remedy for puerperal convulsions that I haven't had a chance to use since it was brought out. For the last two or three years I haven't had a case of puerperal convulsions, but when I do have that unfortunate experience I am going to try glucose and sulphate of magnesia.

The paper was certainly a most excellent one from the doctor's standpoint, but it was just a little short.

S. P. Oldham, Owensboro: I wish to express to Dr. Gossett my appreciation of the valuable paper and the many facts he has brought out this morning.

I am sorry that there are not more of the laity here to hear these papers that they may be more thoroughly educated along the lines of prenatal care.

The first thing I want to mention is the value of asepsis in the preparation of the woman for labor. I do not think we can be too careful in preparing our patients for this trying ordeal. I believe any patient that is to be confined should be as aseptically prepared as those undergoing an abdominal operation. Many of the doctors throughout the country are careless in preparing their obstetrical patients. Some are satisfied with clipping the pubic hair, but I am glad to know that the essayist has a routine of shaving the field. This is absolutely necessary in preparing the patient in order to protect her against infection.

It was interesting to hear Dr. Gossett mention as part of his preparation the cleansing of the clitoris. Few women know they have a clitoris. Fewer still know how to take the sanitary precautions necessary. Here alone may be the source of many infections.

Many of us are inclined to give our patients some hypnotic in the early stages of labor, but I believe if we resort to the use of one-sixth of a grain of morphine and two cc.'s of fifty per cent solution of magnesium sulphate, this will allay the most extreme anguish and bring about a state of quietude so necessary at this time, as well as rendering the cervix more dilatable.

I agree with Dr. Gossett in permitting the patient to sit in chair, I do not believe she should be permitted to walk around from place to place: First, because she will become exhausted from long walking; second, standing in an unright position the bag of water is liable to rupture, a thing we do not desire in the first stage.

I prefer to have my patient in a chair, a rocking chair, which you will find in every home and in the majority of hospitals. Place your patient in the chair which is tilted to a comfortable degree and a block placed to hold it and give her a footstool, making her comfortable in this position as far as she can possibly be in the first stage. She will have an opportunity to grasp the rounds of the chair which will help in the contraction.

As to the anesthesia, Dr. Gossett says he is very enthusiastic about nitrous-oxid gas. There is no question but that nitrous-oxid gas is an ideal anesthetic in obstetrics, but there are times when this anesthetic cannot be used. It is oftentimes prohibited because of the expense. Second, it requires an expert anesthetist to administer nitrous-oxid gas. Third, we are told this anesthetic together with ether and chloroform oftentimes produces the same condition of affairs that you find in eclampsia, and especially in a patient inclined to toxemia. In this pathology it would be contraindicated.

I use nitrous-oxid gas and feel every obstetrician owes it to his patient to make himself efficient in the use of every sort of anesthetic which will have a tendency to help toward relieving pain. I also use ether and chloroform. Caudal anesthesia is one of the safest and most efficient anesthetics that can be used. First, by the administration of procaine and quinine urea hydrochloride, the anesthesia is sufficient to terminate any spontaneous labor. Second, the highly nervous patient becomes quiet and composed and readily bears down to her conditions. Third, if the block is perfect the birth ordeal canal is anesthetized and becomes thoroughly relaxed, and in this event the ironing out of the perineum is not necessary. The patient being entirely conscious, co-operates with the obstetrician so that the head will pass over the perineum ad libitum.

The doctor spoke of using green soap and KY jelly. That is a very good lubricant. I use tincture of green soap. It is an antiseptic and a lubricant as well.

Another thing in the preparation of the patient I go one step farther. That is, in swabbing out the vagina; I use a five per cent solution of mercurochrome. We are told that the vagina is not sterile and many pathogenic bacteria invade it; for this reason I use mercurochrome to destroy, or at least render inactive, the pathogenic bacteria that may remain in the vagina.

Bed exercise: I wish more could have been said about bed exercises. It is my rule that on the fourth day I begin the leg exercise, raising the legs up and down, shifting the pelvis. On the eighth day I put them in the knee-chest position. I continue that five minutes each day up to six weeks. A few hours after the baby is born. I have them lie on the stomach and change positions at various times during the day.

In the care of the breast after delivery, the doctor spoke of some ointment which I am sure is very good, but I use an old prescription composed of bismuth and castor oil. This applied to an irritated nipple is one of the most soothing and efficient preparations I have ever used.

Walker Gossett, (in closing): Thank you for the discussion. Dr. Thornton did not discuss my paper at all, but gave us a discussion of obstetrics in general. This paper was not intended for a text-book on obstetrics, but just a simple, ordinary, common sense technique of preparation of your patient for labor. Even my good friend Dr. Thornton, in his lengthy and scientific discussion, did not say a word concerning the preparation, nor did he inform us whether or not he used rubber gloves.

The speaker wishes more of you had gone into the detail of preparation of your patients in the homes, for there should not be much difference in hospital preparation and home preparation.

I am advised that one-third of the deaths in Kentucky following labor is due to septic conditions. Whose fault is it?

Lincoln says: If I were to try to read, much less answer, all the attacks made on me, this shop might as well be closed for any other business. I do the very best I know how—the very best I can; and I mean to keep doing so until the end. If the end brings me out all right, what is said against me won't amount to anything. If the end brings me out wrong, ten angels swearing I was right would make no difference.

THE TREATMENT OF PEPTIC ULCER.*

By H. T. Rivers, M. D., Paducah.

In discussing the treatment of the condition termed Peptic Ulcer, our remarks will be confined to surgical treatment of ulcers of the stomach and duodenum. The etiology is at the present time undetermined with a strong drift of opinions among the investigators in this line of work, that in a majority of instances that the ulcer is secondary to some focus of infection, either in the mouth, tonsils, ears, "sinuses" or within the abdominal cavity. There are others that favor the theory of hyperacidity. Rasmon produced seventeen ulcers in forty dogs by excluding the bile from the intestines.

Any gastric or duodenal ulcer requiring operation is an admission that medical treatment has failed. This is often due to the inability of the attendant to ascertain the cause. While it is important that the internist always be upon the qui vie in his efforts to determine the primary cause, it is doubly true when they fall in the hands of the surgeon, for if he makes an operation the patient naturally expects brilliant results, which more than likely is realized, but in a percentage of the cases after a few months there is a return of the ulcer symptoms, with a dissatisfied patient and an embarrassed surgeon.

The indication for surgical intervention in gastric and duodenal ulcer are, first, the cases of patients not free of symptoms after competent medical treatment. Second, pyloric obstruction. Third, repeated hemorrhage. Fourth, perforation of ulcer, and the penetrating type of ulcer.

There is no standard routine surgical procedure. It is only after the abdomen is opened, and the diseased organ, or organs, are inspected that the type of operation indicated can be determined. Any of the following operations may be indicated for the relief of gastric ulcer: (1) Gastroenterostomy. (2) Excision. (3) Gastro-enterostomy with excision. (4) Resection of part of body of stomach and pylorous.

Recently it has been shown that 15 per cent of gastric ulcers show microscopical malignant changes at times of operation. This would indicate that a simple gastro-enterostomy would rarely be justified. Excision of ulcer with knife or cautery has not given the brilliant results that were claimed for it, and at present is not utilized by the best men in this line of work. Gastro-enterostomy with excision of ulcer by the method of Balfour is quick, easy, safe and gives brilliant and permanent results.

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*Read before the Kentucky State Medical Association, at Owensboro, October 3, 4, 5, 6, 1927.

Moynihan claims for partial gastrectomy a mortality of 1.6 percent over a period of ten years. He regards this procedure as the safest and best, when the cancer incident 15 to 18.6 as shown to occur in all gastric ulcers is taken into consideration.

In duodenal ulcer complicated by stenosis of the pylorous, the operation of choice will undoubtedly be a gastro-enterostomy. Some authorities believe that when. the acidity is high and the ulcer is very active, that a resection of the stomach and the portion of the duodenum bearing the ulcer should be done. This is a radical procedure and each operator must be his own judge in settling the question as to whether or not he is justified in attempting such extensive work.

Bleeding duodenal ulcers that are located in a portion of the duodenum that can be reached should be excised. Those located on the posterior wall and in a duodenum that is fixed by adhesions that cannot be freed are not amendable to this mode of treatment. Puncture by cautery as recommended by Balfour gives good results in single ulcer of the anterior wall. Moynihan claims that gastroduodenostomy gives better results in a certain percentage of cases, that there is less interference with the anatomical and physiological functions of the parts, than from gastro-enterostomy, that the disadvantages lie in its limited application; namely, large, active ulcer, inability to mobilize the duodenum, and a stormy convalescence.

R. Lewisohn and L. Ginburg in a recently published report of cases on surgical service of Mt. Sinai Hospital, New York, claimed that only 50 per cent were permanently cured by gastro-enterostomy; that 34 per cent developed a gastro-jejunal ulcer. He believes that the 5 per cent incidence as generally accepted is too low.

Since the substitution of partial gastrectomy for gastro-enterostomy the percentage of cures has been raised from 50 to 90 per cent, due to the establishment of an immediate and permanent achlorhydria. He claims that achlorhydria is found in 77 per cent of partial gastrectomy and in only 3 per cent of gastro-enterostomy, explained that the acid producing glands are situated in the fundus and body of the stomach, but the hormone which activates the acid producing glands is produced in the antrum. He advises removing the pylorus and 10 cm. of the lesser curvature.

Balfour reports a percentage of 1.6 per cent of gastro-jejunal in 8,600 cases operated at the Mayo Clinic. Moynihan reports the same percentage.

Out of this mass of conflicting opinions promulgated by the highest authorities of the day, there arises the question, and a vital one, where do we, the cross-road surgeon stand?

Shall we make gastro-enterostomy with a recurrence of a gastro-jejunal ulcer in from 34 to 1.6 per cent or a partial gastrectomy with a gastro-jejunal ulcer occasionally. C. H. Mayo states he has seen two recently. It makes a conscientious surgeon feel that the best advice he can give his clientele is to get restricted diet and keep at work; if this does not relieve, to adopt a rigid diet with rest in bed. If this does not relieve, then go to the best surgeon his financial condition will permit and say, "Here I am ready and willing to accept the fate that the Gods have in store for me."

BLOOD TRANSFUSION.*

By L. Wallace Frank, A. B., M. D., F. A. C. S., Louisville.

For the present status of our knowledge concerning blood transfusion we are indebted to the work of Crile, Moss, Linderman, Berheim, Lewisohn, Unger, and several other observers. Insofar as the laity is concerned, transfusion is one of the most spectacular maneuvers, and usually one of the most successful, of all therapeutic procedures.

There are definite indications for blood transfusion. In massive hemorrhage, where it is essential to replace the blood volume, not only because of its cell content but also the oxygen content, this replacement can be effected only by introducing blood into the circulation.

In the anemias due to small continuous bleeding, transfusion has a place. Benefit may be expected to accrue from the introduction of blood platelets, fibrinogen, etc. and the stimulating effect of new blood. In this respect it is far more valuable than the introduction of sera.

As a preoperative and postoperative measure it is beyond compare. Not infrequently patients are seen who badly need surgery, and yet are in no condition to withstand operation. By blood transfusion (one or several) such individuals can be so improved that surgery may be safely undertaken.

The loss of blood incident to various operative procedures is sometimes considerable, and when the patient is not in good physical condition, knowing that we are going to place upon him the additional burden of blood loss, it is a wise plan to introduce blood before operation. "It is much better to have the entire campaign formulated and be ready for an emergency, than to have an emergency arise and then have to go hunting for a suitable donor to give the blood."

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*Read before the Louisville Medico-Chirurgical Society.

The value of blood transfusion is well demonstrated by the following case: A woman was admitted to the Baptist Hospital with the history of having had an abdominal tumor for five years. In the last six months her condition had become much worse. Examination revealed what was thought to be a rather soft fibroid tumor of the uterus. Blood count: erythrocytes 3,500,000, hemoglobin 60 per cent. The abdominal mass was large and fixed, and, realizing there would probably be considerable hemorrhage, the patient was given a transfusion of 750 cc. of blood prior to operation. The tumor proved to be a suppurating fibroid and contained about a quart of pus. The patient withstood the operative work very well, but owing to her impaired vitality we gave her another transfusion a few days afterward. Later she received two additional transfusions and made a perfect recovery in six weeks. I do not believe this patient could have been brought through safely without the preoperative and postoperative transfusions.

In sepsis blood transfusion is of greater value than the introduction of mercurochrome, gentian violet or any other bactericidal substance. By transfusion there are introduced fresh phagocytes, fresh bactericidal substances, fresh complement, fresh vitality, and these factors assist the patient in overcoming the infection. In septic cases whole (unmodified) blood should be used in transfusion. Citrated blood is not so satisfactory.

We recently saw a young woman who had puerperal infection and pelvic thrombo phlebitis, with temperature of 103° to 104°F., and emboli in various parts of the body. She was transfused, following which, for two or three days, her temperature remained high, then gradually receded, and she made a complete recovery.

Another indication for transfusion is in the various blood dyscrasias. Blood transfusion never cured a case of pernicious anemia, but it will tide these patients over the crisis until they reach the stage of amelioration, after which they may live for several years in comparative comfort. This is well illustrated by a patient who was referred to us by Dr. Coffey of Portland, Oregon, in September, 1925:

Mr. G., aged 62, not realizing that he was sick, made a trip across the continent by automobile. When he reached the coast his condition was such that Dr. Coffey gave him two transfusions of citrated blood. Following each of these there was a temperature reaction, but the blood picture improved. When first seen by Dr. Coffey his hemoglobin was 31 per cent, erythrocytes 1,200,000. When he came under our observation ten weeks later his hemoglobin was 65 per cent, erythrocytes 2,000,000. During all of that time he was much below par and very weak. He was given another transfusion of 500 cc. of whole blood, and in the next six months he received seven additional transfusions. During one stay in the hospital we gave him 700 cc. of whole blood one day, and three days later 500 cc. In that way he was carried over the crisis safely. He is relieved but not cured; the bone marrow is now doing its work. During the past summer he visited a large clinic in Germany where he was told that he did not and never had pernicious anemia, his hemoglobin being 85 per cent, erythyrocytes 5,000,000.

In aplastic anemia transfusion should be tried, although it may be useless, the object being to stimulate the bone marrow which may even occur when slight hemolysis takes place following transfusion. When that occurs it has been our observation, if the patient survives the hemolysis, his bone marrow is stimulated to greater activity.

In infants blood may be introduced into the saphenous vein, the longituinal sinus, or the jugular vein. Transfusion is often a lifesaving measure and is indicated in marasmus, "summer complaints," following operations, etc. In children the intraperitoneal injection of blood has been productive of satisfactory results. It requires one to four days for the blood to be absorbed. Meyer, in twenty-five instances, introduced blood into the peritoneum in cases in which there was no blood grouping and claims satisfactory results.

As to methods of transfusion: The first was by suturing an artery to a vein as advocated by Crile. Dorrance afterward modified this because it was easier to suture a vein to a vein than an artery to a vein. Later Lewishon introduced his anti-coagulant,—sodium citrate,—and since then citrated blood has been widely used. About the same time Kimpton and Brown devised a tube into which blood was drawn from the donor, the tube then removed from his vein and introduced into the vein of the recipient, blood being forced into the latter's vein by air pressure. The recipient thus received absolutely unchanged blood—"whole blood." Later Vincent modified the Kimpton tube so it can be used with a needle in both donor and recipient. Linderman devised the syringe procedure whereby blood is drawn into the syringes, sometimes rinsed with citrate solution, and then the blood is rapidly introduced into the vein of the recipient. There are three or four mechanical devices for use in transfusion, all of which have some merit, but that of Unger is probably the most satisfactory.

Blood transfusion is not entirely devoid of danger; it may be followed by quite serious reactions. These reactions may take one or two forms. The hemolytic type develops immediately upon the introduction of a limited amount of blood. I have had two such cases, one patient recovered and the other one died. In the first case a man with pernicious anemia began vomiting almost immediately after the introduction of blood, and the transfusion was stopped. Within half an hour he became icteric, he had hemoglobiuria, passed blood per rectum, and also vomited blood. He finally recovered and his anemia improved. The other case was similar, but the anemia was apparently less severe, yet the man died following transfusion.

In the fulminating or hemolytic type of reaction there is diminution of the platelets, also reduction in erythrocytes with decrease in polymorphonoculears, and increase in lymphocytes; the bleeding time is increased and the coagulating time lengthened.

In the second type the reaction develops more slowly. It is a form of anaphylactic reaction in which no hemolysis occurs. The erythrocyte count remains unchanged, the polymorphonuclears are not diminished, and the coagulation time is shortened. The reaction generally appears four or five hours after transfusion, is characterized by a chill, temperature 104° to 105°F., pulse correspondingly elevated, no change in respirations. The temperature recedes by lysis and becomes normal within two or three days and the effect of transfusion is not lost. This is the type seen in infections where transfusions are performed and is explained by some as due to bacteria breaking-up blood cells in the serum, or new blood breaking up the bacteria and so liberating protein thus producing the so-called "protein reaction." The only danger in a reaction of this type is in cases where there is a damaged heart, kidney or liver. In some instances death has followed due to renal complications.

In the treatment of these reactions adrenalin (1:1000), 15 to 30 drops in one ounce of water administered intravenously, seems to have marked beneficial effect in severe cases. In the others there is little to be done. These reactions may be avoided by careful preparation.

Moss has grouped all individuals into four groups. It is the accepted belief that early in life the child forms its own group and that the group never changes; for instance, he may belong to group four, if so he is a four all his life. In blood transfusion it was formerly the custom to take two individuals of the same group and use them as the proper types for transfusion. However, it has been found that the blood of individuals of the same group frequently will not match perfectly, consequently there may be a sharp reaction with hemolysis. To secure the best results the donor and recipient should be of the same group and the blood should not only match properly, but be cross-matched, the serum of one against the cells of the other, and *vice versa*. By such matching and cross-matching severe hemolytic reactions may be avoided, but mild reactions may occur with rise of temperature, etc.

In our blood transfusion work we have practically abandoned the citrated blood. It has been stated that reactions characterized by chills, high temperatures,—but no hemolysis,—occur from the citrate method in about 25 per cent of cases, and such has been our experience. Following the use of whole blood, either by the syringe method, the Kimpton-Brown tube or one of its modifications, reactions are practically eliminated. The explanation is certainly not the fact that citrate is used, because small quantities of citrate solution have been introduced intravenously without reaction. It may be due to the blood becoming cold, because in this method of transfusion between a pint and a quart is withdrawn at a time, and while an attempt is made to keep it warm, there is no question but it becomes chilled; it passes through rubber tubes and may there become cooled; and in some cases the rubber tubes themselves have been found by the Mayo Clinic to be the cause of the reaction. These objections do not obtain in the Kimpton-Brown or the Linderman's syringe method of transfusion.

CONCLUSIONS.

(1) That blood transfusion as a preoperative and postoperative measure is of inestimable value.

(2) That in the treatment of infection the introduction of blood into the patient may furnish him with vitality, antibodies and phagocytes sufficient to overcome the disease.

(3) That reactions can be avoided by careful grouping of donor and recipient.

(4) That in the treatment of blood dyscrasias transfusion, while not curative, is of great value.

(5) That the transfusion of whole blood is better than citrated blood in every case where

transfusion is indicated, except possibly in acute hemorrhage.

DISCUSSIONS.

Louis Frank: We began the transfusion of blood shortly after Crile's classical paper appeared twenty or more years ago, these being performed according to his method using a small coupling. They were all direct from artery to vein. My associate at that time was Dr. Bernheim, now of Baltimore, and I did quite a little work experimentally on dogs not only in transfusing but also in suturing utilizing the carotoids and the femorals. I had also done the operation experimentally before I ever attempted to perform a direct blood transfusion. We later began using the indirect method utilizing the Kimpton-Brown tube. I think anyone who contemplates doing blood transfusions should first practice on the dog. Transfusion is a simple procedure, but requires perfected technique, and there are some things about it that must be looked after or the greatest and highest value of the transfusion itself may not be obtained. By lack of experience or bad technique the blood obtained from the donor may itself be lost or never reach the vein of the intended recipient. I have seen that happen. The procedure while comparatively simple and easy and done oftentimes as a bed-room procedure, should I think,—as every other surgical procedure which seems simple and easy,—be done on lower animals experimentally several times before being tried by anyone on the human being. I do not refer now to the transfusion of citrated blood, though this procedure also necessitates practice and observation to little details to achieve the best results. We think there is no place for the transfusion of citrated blood except after massive hemorrhage and then only for replacement.

Much has been said about obtaining a proper donor for whole blood transfusion. This can be done in the majority of instances as in many of the larger cities the medical students are grouped upon admission and the cross-matching is easily and quickly done. I want to emphasize what the essayist has said, that the blood must be grouped between donor and recipient, and the blood must also be exactly matched between the two individuals of the group. This is not only necessary but is absolutely essential. Notwithstanding the fact that a child or even an adult may belong to a certain group, if a man has received a large number of transfusions and he is still a four or three, he may not match again with the individual that he had previously matched. Under such circumstances, it is advisable to repeat the matching if the man has received a number of transfusions, because following transfusions there may be some change in the blood as previously matched. This should certainly be done where there has been any considerable lapse of time, and it should be done each time before the transfusion is done.

I know of nothing that is of greater help to the surgeon, and probably also to the medical man when indicated, than the transfusion of whole blood. It has been suggested that in certain infections that a proper donor might be immunized by the transfused blood, thereby having active bactericidal properties toward the specific infection. This suggestion was made to me some time ago by Crile in a case of osteomyelitis, namely: that a proper donor be immunized against the infecting organisms and his blood used by transfusion in treating the boy. Simple whole blood, however, gave such satisfactory results that the suggestion was not necessary. We have done blood transfusions in acute infections in numbers of cases. We transfused one child with osteomyelitis eight or ten times with good effect I am sure, and were enabled to carry the boy through by that means. He died three years afterward from pneumonia.

I also think whole blood transfusion is infinitely superior in the treatment of severe infections to the introduction of antiseptic agents, as the essayist has stated. There are some things to be safeguarded against, and it is essential where transfusion is contemplated that the donor should be ready. I do not believe in using complicated apparatus in blood transfusions, the simpler the method the better it is. The method of indirect transfusion with tubes is more satisfactory in my hands than any other method we have used.

John Walker Moore: Blood transfusions in pernicious anemia at the present time are seldom used because we have a substitute, that is the so-called liver diet. Five dollars worth of liver corresponds to seven hundred dollars worth of blood. However, I do think there is still a place in pernicious anemia for blood transfusion, especially in patients who are suffering as a result of overwork of the heart. The heart rate may be rapid (120 to 130) as the result of anemia, and it is not uncommon for these patients to become markedly weakened and have heart pain not unlike that of angina. Blood transfusion in such cases causes the symptoms to disappear almost like magic. Of course transfusion has to be given very slowly, because when we load the blood stream with an excess of material we are likely to overload the heart. Slow transfusion over a period of half an hour is the method of choice in these cases.

As to the citrate method versus the direct method: I agree with Dr. Frank if one is capable of using the direct method that is the procedure of choice; but there are few men in the United States who can apply the direct method properly. In the city hospital where we formerly used the direct method, quite frequently an enormous amount of blood was lost through some accident. For that reason we were forced to use the citrate method. Very seldom do we have any reactions.

Emmet F. Horine: I was very glad to hear what the essayist had to say with reference to blood transfusion versus the injection of dyes and other substances in the treatment of certain infections, As you know, I am especially interested in the treatment of endocarditis and it has been my experience that the dyes exert little if any, beneficial effect in this condition. However, in endocarditis, occasionally some good will result from the transfusion of blood.

A very interesting procedure was mentioned by Dr. Louis Frank, namely, the selection of a proper donor then immunizing him and using his blood for transfusion in subacute endocarditis. This method has been successfully used in England according to a recent issue of the British Medical Journal. A vaccine is made from the organism isolated from the blood of the patient with subacute infective endocarditis. This vaccine is then used to immunize the properly selected donor and after such immunization is completed transfusions are employed. Personally ,thus far, I have not seen the method used but certainly it seems to be a good idea and perhaps something will come of it.

Adolph O. Pfingst: The essayist spoke of using epinephrin in those cases in which untoward reactions followed blood transfusions. I would like to ask how he used it—in what doses and how frequently. I would also like to ask if in transfusing there is any danger of the formation of emboli.

J. Rowan Morrison: I have enjoyed the remarks made by Dr. Frank immensely and he has covered the subject thoroughly. Blood transfusion is a wonderful thing in the hands of those who understand the technique of its performance.

My experience with blood transfusion in subacute bacterial endocarditis has been limited. It seems to be a good thnig for temporary symptomatic relief. However, in any case where there is a concealed focus of infection, the first indication is to get rid of the focus, and transfusion may then have greater effect.

In preoperative and postoperative treatment, blood transfusion has a great field of usefulness.

Oscar O. Miller: With reference to blood transfusion in hemorrhage. It is well known that in pulmonary tuberculosis many of the patients suffer from hemorrhages. The average amount of blood lost ranges from 100 to 200 cc. and in such cases no treatment is required so far as the hemorrhage is concerned. In combatting the more severe cases, where the blood lost is from 700 to 900 cc. I have often wondered whether blood transfusion might not be of benefit. In profuse hemorrhage from the lung the aspiration of blood into the bronchi and alveoli usually terminates in a bronchopneumonia within seven days. We have used saline solution by hypodermoslysis believing it to be of value in increasing the coagulation time. I have never seen anything in the literature as to whether or not any patients of this class have been transfused with benefit. I think it is a point well worth keeping in mind. If transfusion is used we would naturally have to resort to the citrate method.

Stuart Graves: One very interesting point raised by Dr. Louis Frank in his discussion I should like to ask the essayist to discuss in closing his report. I refer to the statement that the type or grouping of the blood of any individual changed from time to time. It has been my understanding that blood groups followed definite lines. The statement that the grouping of either donor or recipient changed between transfusions is very interesting.

I should like to know if this has been dfinitely proven. I should be inclined to doubt it unless the fact has been proven by cross-matching the blood of a large number of people. I wonder if it may not be more likely due to some mistake in technique on part of the laboratory in typing the blood.

Morris Flexner: There is one point in regard to matching the blood for transfusion which I would like to make, frequently this test has to be done too hastily in the laboratory. Of course, there are some cases in which haste is necessary but there are many medical cases where the transfusion is not really an emergency when it is made one. Fewer reactions will occur if the bloods are allowed to incubate and then are put in the ice-box over night and read the following morning; in other words, a macroscope matching is done.

There is one condition in which I feel the whole blood should be used preferably to citrated blood and that is in thrombocyteopenic puerpera hemorrhagica. In that disease there is a marked diminution of blood platelets. It has been shown experimentally by Rosenthal and Baer that the introduction of citrate into the circulation destroys blood platelets and it is that liberation of thromboplastic substance which increases circulation. Hence it would seem that the introduction of a drug into the circulation that would destroy the too few existing blood platelets is contraindicated and I believe whole blood is preferable.

The matter of immunizing the donor before transfusion is exceeding interesting and I think we are a little lax in employing this type of transfusion. The main objection to it is that it takes time. Using this procedure cases of streptococcus viridans endocarditis have been reported as cured where other methods have failed.

I do not feel that the profession as a whole has given this therapeutic procedure a fair trial and I think we should do it oftener in cases of persistent blood stream infection.

James W. Bruce: I have certainly enjoyed Dr. Frank's interesting, practical and comprehensive remarks. I first wish to comment on Dr. Flexner's discussion in regard to the transfusion of citrated blood in purpura hemorrhagica. As he has said, purpura hemorrhagica is a disease characterized by a marked diminution of blood platelets, therefore in giving transfusion we should introduce blood in which the platelets are unaffected. There has been some doubt expressed as to the validity of the work of Rosenthal and Boehr and I do not believe it is now so generally accepted as it was originally. Citrate does not destroy blood platelets in the test tube, in fact citrate solution is used in making blood dilutions for study of the platelets. I think there is considerable doubt as to just what effect citrate has on the blood platelets. Much has been written about it on both sides but the question is not definitely settled. Blood trasfusion does not cure purpura hemorrhagica, it simply tides the patient over until splenectomy can be performed which has a permanent effect. We had occasion to study this subject at the city hospital last summer. A girl of eight years was admitted with typical purpura hemorrhagica and a blood platelet count below 50,000. After two transfusions of citrated blood the platelet count rose to 100,000 and the coagulating time was shortened. She was operated upon sucessfully and showed no further evidence of purpura hemorrhagica.

There are several indiactions for blood transfusion in infancy. One is hemorrhagic disease of the newborn. This disease is only found within the first two weeks of life, and these children are very apt to bleed to death within a short time, especially if the hemorrhage is from the gastrointestinal tract. Transfusion will generally stop the bleeding immediately. There is one very important point about the transfusion of newborn babies, and that is that it is not necessary to match the blood. While the blood groups are formed in newborn babies, apparently they will not have strength enough to produce a reaction of any severeity, and for that reason it does not seem necessary to match the blood.

Another type of case in which blood transfusion is indicated is in severe intestinal intoxication. Of course we only see that in infancy. Transfusion may keep the baby alive until normal gastrointestinal power is regained. Powers and Park have reported a series of cases of gastrointestinal intoxication in which they reduced the mortality to 30 per cent by repeated transfusions and starvation, whereas under the older methods of treatment the mortality has ranged from 65 to 70 per cent.

Regarding citrate and whole blood transfusions. If the blood is absolutely grouped there is no question that whole blood transfusion is better, and this method can readily be used if you have the co-operation of the individual. Of course in infancy we have no co-operation, the child fights, and as rapidity is necessary an anesthetic must often be given so the work can be done smoothly. We use the citrate method in which we do not have to work so rapidly. In older persons who will co-operate the use of properly grouped whole blood causes fewer reactions and better results are secured.

The intraperitoneal introduction of blood has received much attention recently. One contraindication which might be mentioned is the presence of blood stream infection. The intraperitoneal injection of blood in the presence of blood stream infection may lead to peritonitis and a fatal termination. Dr. Grulee of Chicago reported such a case before the last meeting of the Southern Medical Association. A patient with lung abscess was given an intraperitoneal transfusion. Shortly afterward the patient developed peritonitis and died. An autopsy was performed and no evidence of infection was seen about the puncture wound, so it was thought the infecting organism must have come from the lung abscess via the blood stream.

Intraperitoneal injections of blood are excellent where haste is not indicated. In case of massive blood loss from hemorrhage and in gastrointestinal intoxication intraperitoneal injections are not nearly so useful. Blood injected into the peritoneum is absorbed rather quickly. I saw last year a baby operated upon for congenital hypertrophic pyloric stenosis. Twenty-four hours after intraperitoneal injection of blood we found a small jelly-like clot 2 cm. in diameter with marked engorgement of the omentum. The omentum seems to play an important role in the absorption of the blood cells.

A. Clayton McCarty: I wish to thank the Society for the privilege of being present at this meeting and hearing the excellent resume by Dr. Frank on the subject of blood transfusions. I think the advantages of transfusions have been realized by the surgeons for some time. What insulin has been to diabetes, blood transfusion has been to many surgical cases—a real life saver. There is no question, however, that transfusions should be used more frequently by the medical man. It has inestimable value in cases of prolonged sepsis. It is not always fully credited, however.

A few months ago, we had a patient with a positive streptococcic blood stream infection and endocarditis. This patient was given mercurochrome, gentian violet, neosalvarsan and sodium cacodylate intravenously, all of which were followed by fairly sharp reactions but no improvement. Finding a suitable donor, this patient was given a blood transfusion of 400 cc. by the Vincent method. Patient showed slight improvement several days afterwards, and was removed home by her mother. Herb treatment was started by the family and the patient's continued improvement attributed to the herbs, but it is my conviction that the blood transfusion was the most important thing she received.

I cannot entirely agree with Dr. Frank that blood transfusion is of such paramount importance in pernicious anemia. I believe that the diet treatment of Murphy and Minot is much more satisfactory. As Dr. Moore has said, however, in certain heart conditions accompanying pernicious anemia, transfusion is advisable. Furthermore, if the blood count is quite low, small transfusions will often save the life of a patient and it improves the blood picture to the point where liver diet may be instituted. Where reaction is feared in even small intravenous transfusions, it is sometimes helpful to give 50 cc. of whole blood into the buttock and repeat if necessary.

As to method, I believe that the man who does an occasional transfusion, should stick to the citrate method. Whole blood is more valuable, but is much more difficult to give. I do not believe the success of whole blood transfusions depends entirely upon the skill of the operator, but rather upon team work of several operators who are continually using one of the whole blood transfusion methods.

I saw a number of different methods used over a long period of time in Philadelphia, and I am personally most favorably impressed with the Ceressi method. If animal experimentation and frequent use of the method are practiced, whole blood may be quickly and easily transfused. One of the hospitals of this city has recently purchased such an apparatus and it is being used with success at present. Incidentally, it is a very handy apparatus for doing paracentesis abdominalis.

John W. Price: I would like to pay my respects to the essayist. He has given us a splendid exposition of the subject of blood transfusion. It has been about nineteen years since I undertook some experimental work to devise a method of doing direct transfusion.

In discussing the subject of transfusion we must not overlook the early work of Carrel, who undoubtedly gave greater impetus to vascular suture than any surgeon in the world. Crile came along afterward and popularized the direct method of transfusion. This subject should not be discussed without giving due credit to the work of Bernheim, because he was one of the pioneers in the experimental work of direct transfusion and has since done a large number clinically. Also Soresi who came along about the same time. Soresi and myself were on the program of the old Mississippi Valley Medical Association which met in Chicago in 1910 or 1911, and he presented his instrument and I presented mine at the same meeting. He has made some improvements in his original instrument, in fact his present instrument is quite different from the one he originally designed.

As to the difficulties in technique. The Carrel technique is one which very few surgeons in the world and a very small percentage of surgeons in this country have mastered. It was delicate work and required the aid of an assistant who was almost as dexterous as the operator, and it was because of this difficulty in technique that I undertook to devise a new method for direct suture of the vessels. It was so successful that I made an anastomosis between vein and artery in the neck of a dog in four minutes, and I am not famous for being a rapid operator. The instrument used was a modification of the Bernheim canula, which in turn was a modification of the Crile canula. My instrument was a split canula, each half being attached to a shank of the two shanks were held together like those to a forcep and provided with hooks by which it was possible to take the artery and cuff it over the canuda, and by pulling the other end of the vessel over the cuff the two ends were approximated and complete anastomosis was made. The cuff from each end was held by the hooks and it was a very simple matter then to take a fine suture and insert it around the canula. When the suturing was completed the cuff would slide off the canula and the latter was removed, which could not be done with either the Crile or Bernheim canula. After perfecting this technique I reported in 1911 or 1912 having used it on dogs for a period of two or three years. It was several years, however, before I had an opportunity to use it on a human being. It was used a few occasions in suitable cases with satisfaction. During these years the citrate method of transfusion was developed, and after general use throughout the country it has proven so efficient that now few surgeons are trained in the direct method of transfusion. In the method where you use whole blood the Lindeman syringe method and the Brown tube are superior in my opinion to the technique of Carrel or the technique which I developed and also much simpler. As for the citrate method, as has been repeated here, in the majority of cases it serves very satisfactorily.

If I may be permitted to indulge in reminiscences, during the late war I had the honor, the sad duty, of being consulting surgeon in the evacuating hospital service, and had to visit the shock ward each morning to select the poor fellows who were in condition for operation. The preparation of these severely wounded and toxic patients was done entirely by the "shock team." The surgeon on duty did not do the preparation, that work was done by the "shock team." Why I mention this war story is that I saw hundreds of soldiers who had gas infection, all types of mixed infections attended by systemic manifestations tremendously benefited by blood transfusion and put in condition where they could be operated upon with greater safety. Therefore, I am thoroughly aware of the benefits resulting from the use of whole blood or even citrated blood in the preparation of the severely infected whether used before or after operation. I am aware, also, of the benefits to be derived from whole blood or citrated blood in cases of general blood stream infection. There is no doubt about it, nothing that has been developed for use by the profession in the last twenty years is so beneficial as the method of introducing blood from a healthy individual into the circulation of one who is ill.

The indications for blood transfusion, or at least the majority of them, have already been mentioned. Some of those mentioned were unfamiliar to me, but the indications have been extended by increased experience and are more numerous than they were twenty years ago when I was doing experimental work. The technique of transfusion has been greatly simplified, but the greatest addition to the technique has been the typing or grouping of the blood of both donor and recipient prior to the time transfusion is undertaken.

Professonial donors whose blood has already been typed are now available in the various hospitals. I think every first class hospital should have a group of professional donors on hand so that when indications arise for transfusion the individual requiring a donor may be able to secure one by telephoning the office of the hospital, asking that a donor the particular type needed be furnished. The technique of blood typing I have left to others. If a man understands the technique and does the work personally I rely upon his report. I think blood typing should be done by some one who does it frequently, rather than by an occasional typist. When that is done fewer mistakes will be made.

L. Wallace Frank (in closing): I thank the gentlemen for their liberal discussion, and will endeavor to answer some of the questions raised. I did not intend to convey the impression that I advocated blood transfusion for the treatment of pernicious anemia. However, there are certain cases where the patients are not doing well and something must be done to improve their condition immediately. In such cases blood transfusion will often raise the blood count quickly and the patient becomes more comfortable. Transfusion is not a remedy for pernicious anemia but is helpful in many cases. Transfusion should be of whole blood.

So far as concerns the use of citrated blood in pernicious anemia. Herr in some experimental work published in 1925 (Surgery, Gynecology and Obstetrics, October, 1925) came to the conclusion that citrate solution destroyed the blood platelets, destroyed the complement, and increased the fragility of the erythrocytes. If that is the case, then certainly the type of blood to use in both pernicious anemia and purpura hemorrhagica is whole blood. I think the benefit, as mentioned by Dr. Bruce, where citrated blood is used in purpura hemorrhagica is due to the fact that the anemia is at least partially overcome by the introduction of erythrocytes, the anemia being due in large measure to blood loss from hemorrhages into the gastrointestinal tract. However, greater improvement follows the introduction of whole blood containing the normal number of platelets. Lewisohn, who developed the citrate method states that the percentage of reactions is decidedly higher and the coagulation time is shortened due to the fact that it has disintegrated platelts in it.

My original remarks did not contemplate the discussion of using blood from an immunized individual in the treatment of infections, as this would have carried us too far afield. I may say, however, that the method is undoubtedly useful in a great variety of infections, and especially in general blood stream infections.

I have seen several instances in which alarming manifestations occurred during or following transfusions which I knew, to my sorrow, were due to preventable causes. These occurred during the time we were using citrated blood. Occasionally citrated blood clots, and will not pass through the needle. Whenever blood enters the needle and then clots, I am now certain that the blood used does not match well. That is one of the disadvantages of using citrated blood; if it does not match properly, clotting may occur even after the blood is filtered. When the blood clots at the needle we may be reasonably certain we are introducing blood that does not match and we are getting agglutination at the point of contact. We lost one patient from that cause and it taught me a lesson.

As regards transfusion in pulmonary tuberculosis. I think the introduction of small amounts of whole blood would be beneficial. The transfusion of 150 to 200 cc. of whole blood would not increase the blood pressure and might be of benefit, but to introduce large amounts of blood might be a dangerous procedure.

The point raised by Dr. Flexner as to the importance of having a donor ready when transfusion becomes necessary was forcibly brought to my attention about a year and a half ago, when we had a patient brought into the hospital because of uterine hemorrhage. The woman was in fairly good condition at the time. She had hemorrhage fifteen days following delivery. Her uterus was large and boggy, she had been packed temporarily and the bleeding had ceased. However, we were not satisfied with what had been done and suggested that we be prepared for a transfusion should the occasion arise. A suitable donor was immediately sought and we had him ready. A week later the patient had a terrific hemorrhage, the blood soaking through the bed clothes, the donor was waiting and within ten minutes a transfusion of 750 cc. of whole blood was given and the patient was immediately operated upon. She made an uneventful recovery. This emphasizes the importance of always having things ready before hand and not waiting until the last minute and then rushing about seeking a suitable donor when an emergency arises and blood transfusion becomes imperative as a life-saving measure.

As to the point made by Dr. Price regarding the use of citrated blood in war wounds and infections. From my experience I can confirm what Dr. Price has said, that many soldiers with wounds and infections were markedly improved by transfusions; they were put in condition to better withstand the necessary surgery when the infected areas were excised. The mortality of the operating room was correspondingly reduced by transfusions.

Concerning the transfusion of whole blood in children. It is true that we are able to get no co-operation from a young child, but by giving a few whiffs of chloroform it is relatively easy to open a vein and introduce 50 to 250 cc. of whole blood. In cases where an anesthetic cannot be used of course citrated blood must be employed in transfusion.

In our work we really use a modification of the Vincent proecdure and the Kimpton-Brown method, and it is due to this fact that we have not lost any blood. Transfusion by the Vincent-Kimpton-Brown method requires three individuals. It is our custom to withdraw the blood through a Vincent needle. An assistant opens the vein of the recipient and the blood is introduced as though we were using the Kimpton-Brown tube. In that way we save blood and save time. The blood is introduced while it is still warm so there is no danger of clotting. This morning we gave a transfusion of 500 cc. of whole blood in four minutes. There was no reaction.

TREATMENT OF FRACTURES BY THE BONE-KEY METHOD: REPORT OF FOUR CASES.*

By George A. Hendon, M. D., F. A. C. S.,
Louisville.

This report will embrace a brief history of four cases of fracture successfully treated by what we are pleased to designate as our "bone-key" method. This is believed to be a more dignified descriptive term for the procedure than the "bone-peg" appellation.

Case 1. Fracture of the surgical neck of the humerus: The patient before you, S. F. G., a male, aged 73, sustained a fracture of the surgical neck of the humerus October 6th, 1926. He was operated upon by the bone-key method October 26th with perfect result and complete restoration of function. By using the bone-key procedure we can treat any type of fracture, except pathological fracture, without any external means of immobilization. The only dressing used in this case was a sling to support the forearm. I have treated six other cases of similar nature in this manner with equally good results.

This patient has been unfortunate. He was readmitted to the hospital about a week ago with an extracapsular fracture of the right hip. The bone-key method was again employed, without any external immobilization, and the man is comfortable and progressing toward recovery.

There is one feature in treating fracture of the hip by the bone-key procedure about which we should be cautious,—and about which I was not sufficiently cautious in this particular case,—and that is the foot must be fixed in the position desired before the bone-key is applied. Unfortunately in this case I did not do that, and as a result the foot is slightly everted and will remain so, but there is absolutely no shortening. I have operated upon eight cases of this kind with a successful outcome in each. Two of the patients were treated more than a year ago, recovery was perfect in each, and there is no evidence of shortening or deformity.

So far as fracture of the humerus is concerned, this man can place his hand on the back of his head, also on the opposite shoulder, the range of motion being complete. He can do anything with that arm that he could do before the fracture occurred.

The hip fracture was operated upon only about a week ago. He has been able to get out of bed since the fourth day, and for the most part can take care of himself. He can change his position in bed without assistance and is comfortable in every way.

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*Clinical report with exhibition of three patients, roentgenray films and bone-keys, before the Jefferson County Medical Society.

By the use of this method of treatment the dangers of post-operative pneumonia are reduced to the minimum. No plaster or other methods of external fixation are required. And, as already stated, the procedure may be applied to all varieties of fracture except one, i. e., pathological fracture. I have used it in fractures due to gunshot wounds, compound, comminuted, multiple, transverse, oblique and spiral fractures.

Before proceeding further it may be interesting to state briefly how the bone-key is applied. I began this work with the Hudson drill which is used in cranial surgery. This drill carries a 2-8 inch bit, consequently a bone-key of the same size was employed. In treating hip fracture it is only necessary to drill the length of the Hudson bit, that is through the cortex of the bone, the bone-key then being driven through the neck into the head. If the precaution is taken to place the thumb on one side of the neck and the fingers on the other side in driving the bone-key, there is no chance of going wrong. The bone-key ordinarily used is four inches long. In one instance I used a six-inch bone-key without proper estimation of the depth, and it extended through the acetabulum; but this accident did not interfere with the recovery of the patient.

In all instances the bone-keys are allowed to remain in situ. How long they remain without absorption or disintegration I do not know. I have one patient operated upon six years ago and the bone-key is still in position. This patient was 70 years of age and then weighed 200 pounds. He had a fracture of the tibia with non-union after a period of thirteen weeks. The bone-key was employed and prompt union secured.

In cases of non-union this method has been successful in every instance. I have two patients operated upon by this plan a year ago with success after various other methods had been tried with failure to obtain union. The man just mentioned, who was operated upon six years ago, brought me his picture taken a few days ago. He is now 76 years old and still weighs 200 pounds. Prompt union was secured and he has been walking on the leg ever since. The bone-key is still in position, but does not act as a foreign body because it is encysted in the callus. It is isotonic to bone on the same principle that horsehair is to the skin because it is similar in structure. The same reasoning applies to buried catgut, it is unirritating because it is composed of muscle.

No splints or external means of immobilization of any character are required after application of the bone-key. As soon as one is convinced there will be no suppuration of the wound the patient may be allowed to go home. However it is not safe to resume weight bearing on the leg until about eight weeks.

These bone-keys are prepared from beef bones and may be made of any size desired. For the purpose of sterilization the bone-keys are boiled for half an hour. I formerly immersed them in four per cent carbolic acid solution, but do not believe that adds anything to the sterilization.

Case II. This is also a fracture of the surgical neck of the humerus: Note the patient is a male, aged 32, who was injured about the first of September, 1927, and was operated upon September 12th. He was admitted to the hospital with a plaster cast around the upper portion of his body with the injured arm at right-angles. There was no semblance of union. On September 12th the bone-key operation was performed, and you can see the result.

In my experience with this method of treatment I have learned some peculiar things. One is that the cortex of the humerus is very thin and the medullary canal quite large. I have not been able to secure a bone-key large enough to completely fill the medullary canal of the humerus in two instances. In these cases it has been necessary to insert two bone-keys. Another peculiar thing is that after the fracture has existed for two weeks or more the head of the bone seems to degenerate and become partially absorbed. The roentgenogram shows that the head of the bone is apparently present, but actually there is only a capsule lined with soft bony tissue. It is like making an x-ray picture of the stomach after the introduction of barium. The stomach looks as if it were filled with barium, but the truth is that the walls are merely coated with barium.

In the present case after twelve days there was no attempt at union of the fragments. We could see in the roentgenogram what appeared to be the head of the bone, but it was merely the capsule filled with soft bony tissue.

In cases where the fracture involves the head of the bone we do not resort to any "reaming out" process, we merely insert the bone-key firmly into the long fragment, then by the manouver known as "buckling" the key is forced into the soft cancellous tissue of the short fragment. When we cannot get a bone-key large enough to fit snugly into the medullary canal, we drive another key alongside of the first one. We have not found it necessary to apply any kind of retaining or immobilizing apparatus whatever. This patient also had a fracture of the tibia which had received adequate attention before he came under my observation.

It will be noted that the man can raise his hand to the mouth, place it on the opposite shoulder and also behind the neck. The fragments are maintained in correct apposition and I am sure restoration of function will be complete.

Case III. Fracture of the shaft of the humerus: The next patient is A. N. G., a female, aged 48, married, housewife. She was admitted to the hospital with a fracture of the shaft of the left humerus and was operated upon by the bone-key method about four weeks ago. There is still some motion at the fracture site, but so long as the range of motion does not vary it makes little or no difference. We have heard a great deal in the past about movement of the fragments in fracture being wholesome. If the movement in bony fragments extends only to a certain point and does not vary from time to time, it may be regarded as unimportant; such movement will not interfere with ultimate union of the fragments. However, if the range of movement varies, serious results may be expected.

This patient was injured September 11th, 1927, and was operated upon September 26th. She also had a fracture of the forearm which had been treated by the attending physician and was not disturbed, although we may later have to apply the bone-key procedure to secure union. So far as the fracture of the humerus is concerned the fragments are in perfect apposition and there is no chance of their being displaced. Within four weeks from the present date union may be expected. It has now been about four weeks since the operation and there is still some motion at the fracture site. The patient went home two weeks after the operation, or as soon as we concluded there was no longer any danger of suppuration in the wound. In cases of this kind there is absolutely no necessity for the application of any immobilizing apparatus. A sling for the forearm is all that is required.

Case IV. Fracture of the femur: The fourth patient we expected to also exhibit, but he has become a "fugitive from justice." G. A. H., a male, aged 18, sustained a gunshot fracture of the shaft of the femur. He had been kept in a plaster cast for four weeks, and I found him in the ward at the beginning of my service. There was no attempt at union of the fragments at that time.

I want to say this, that in applying the bone-key method in fractures of the shaft of the femur, we always apply in the operating room a straight board to the posterior aspect of the leg extending downward to the heel, as this insures correct position of the fragments until the individual is placed in bed. After the patient is returned to bed the posterior splint is removed and he is allowed to change his position at will as there is no longer any danger of displacement of the fragments.

This man was able to get out of bed on the twenty-first day after the operation, and on the twenty-fourth day he was transferring from the bed to a chair when he fell to the concrete floor without injury. Examination at that time showed there was no displacement of the fragments. In this case, however, there was about three-fourths inch shortening because we had to remove the ends of the fragments to secure proper approximation. The man being a prisoner escaped from the hospital five weeks after the operation and has not been located since. I was particularly interested in this case because I was treating one other with fracture in the same location at the same time. The patients were both boys of 18 and both made perfect parallel recoveries.

DISCUSSION

Orville R. Miller: I am very much interested in the treatment of fractures and have greatly enjoyed the case reports Dr. Hendon has presented. My experience has been rather limited in the use of bone-pegs or bone-keys as medullary splints. I have employed them, however, in the cancellous bone in fractures of the humerus, the external and internal condyles and in fractures of the trochanter, where we are apt to have considerable displacement unless the fragments are held firmly in position. These are the only cases in which I have used the bone-keys, and the results were uniformly satisfactory.

Dr. Hendon is doing splendid work along this line and the patients he has exhibited illustrates the satisfactory results he has obtained by his method of treatment. In fractures of the upper arm I have wondered whether it would not be a good idea to apply some sort of device to hold the arm in abduction for the purpose of avoiding later limitation in the range of motion. As we know the deltoid muscle is comparatively weaker than the flexors, and unless the arm is placed in abduction there may be some limitation in motion after union of the fracture occurs. This happens when the arm is bound to the side for a considerable period even without fracture. I would like to ask Dr. Hendon what he does in his post-operative treatment to avoid limitation of motion of the arm in abduction.

I have been very much interested in this subject and have tried to closely follow Dr. Hendon's work in the hospital. I hope he will be kind enough to present further reports later concerning his results.

L. Wallace Frank: I have enjoyed Dr. Hendon's excellent report. I can understand and appreciate the value of bone-pegs or "bone-keys" in the treatment of fractures of the long bones and possibly those around the shoulder. I would like to ask whether Dr. Hendon makes any distinction between recent and old fractures in applying his method? In old fractures we can practically dismiss the subject, as in cases of that type the "bone-key" method is undoubtedly of value though not so good as the graft of living bone. In recent fractures, however, especially in those of the hip, where the fracture is frequently intrascapsular, to my mind the method has one great objection. As we know, and this is important in any type of fracture where the surgical neck of the bone is involved, the blood supply to the head of the bone is very limited and as a result of poor nutrition in many instances the head of the bone atrophies. To me it seems logical that in recent fractures through the surgical neck in which atrophy of the head may occur, the application of bone-keys destroys any possibility of delayed union of the bone because of the presence of a foreign body which holds the fragments apart. That would be my objection to the use of bone-keys in recent fractures in this location. We have seen two or three cases of fracture involving the anatomical neck of the femur where bony union occurred after six months. These were cases in which after so long a time one would conclude there would be no bony union although fortunately such did occur. In old fractures with non-union or where one is convinced that soft tissues are between the bone fragments, open operation may have its place in fractures of the hip. In others we prefer the closed method of treatment.

Oscar E. Bloch: I believe my experience in fractures have been no different from that of other surgeons. I have found that the fractures bone unites in about ninety-five cases out of one hundred if proper approximation and maintenance of the fragments is secured. In the remaining five case some method of keeping the fragments in proper position must be employed and we have many means at our disposal. I am very glad to have heard Dr. Hendon describe the bone-key which he has been using with success, for it adds one more method to be used in our unfavorable cases.

Dr. Hendon has shown us several cases and has reported many more with unvarying success, and it is not necessary for us to theorize as to why his method should not be a good one.

Guy P. Grigsby: About twenty years ago, while working with Dr. Whitman in the hospital for the ruptured and crippled in New York, I had an opportunity of observing a great many cases of fractures and separations of the femoral neck. In the treatment of these cases proper alignment was secured by abduction at the hip, and for the purpose of fixation we used small bone pins, the principle being similar to that employed by Dr. Hendon. The patients thus treated did exceptionally well. I may say that of all the cases of fracture I have seen, and my experience is probably no different from that of other surgeons, fracture of the hip has been the most troublesome.

I hope Dr. Hendon will favor us with a further report as to the ultimate results in the cases he has reported. If he has a method which he believes superior to those formerly in use, and I know he is perfectly conscientious about it, we should certainly take advantage of the plan. His method may prove to be a great advance over those formerly employed in the treatment of hip fractures in elderly people. However, those of us who use traction and the plaster cast are more familiar with this plan and believe it to be the safest treatment we have in old people. I certainly feel safer in applying a plaster cast than in any other method. If by the plan proposed by Dr. Hendon the patient can enjoy greater freedom of movement without displacing the fragments, it is certainly a great improvement over the older methods. I am hopeful that Dr. Hendon's plan will prove successful, because its adoption will relieve us of a great deal of anxiety and trouble especially in the treatment of hip fractures in elderly people.

George A. Hendon (in closing): I am very grateful for the kind consideration the gentlemen have shown my presentation. I realized when preparing to make the report that it was almost a direct "slap in the face" to all orthodox theories and methods of practice. I began working on this proposition in 1920 and accumulated sufficient material some time ago, but only recently did I develop enough courage to present it. The main object of this work is to relieve the victims of fracture from the enormous load of apparatus, plaster casts, all kinds of traction, extension, pulleys, splints, etc. It may be that I am wrong, if I am I hope someone will tell me so, but I have employed the method described in almost every type of fracture with success.

In answer to Dr. Miller's question about keeping the arm in abduction: The chief object of the bone-key operation is to permit freedom of motion of fractured arms or limbs, to allow the patients to go about freely without any handicap, and relieve them from unnatural positions required by procedures formerly in vogue. I can see no necessity of maintaining the arm or leg in any one position after application of the bone-key.

As to the inquiry of Dr. L. W. Frank concerning absorption of the femoral neck: I may state that two patients were operated upon for fracture of the femoral neck more than a year ago. Both were cases of non-union in young people. One of them had existed for a year and three months, the other for about eignt months. In the latter case the fracture was sustained in a rather peculiar way. A boy of 14 weighing 195 pounds stepped suddenly from an ordinary door-step throwing his entire weight on one leg. He sustained a fracture of the neck of the femur, and eight months later there was no union. By employment of the method of treatment I have described we were able to get them on crutches within four weeks. They have since made perfect recoveries. Neither the function nor the x-ray shows any evidence of degeneration of the neck.

The bone-key procedure is especially applicable in fractures of elderly people because of the marked increase in liberty and freedom of movement they afterward enjoy. They can not only be freely moved in bed, but can move themselves when they so desire. In addition they are more comfortable because they are relieved of the load of apparatus which the application of other methods entails. My experience has shown that there is no danger of dislodging the fragments if the bone-key has been properly applied.

I have one case in a man of 76, who is still living after nearly seven years. This was one of the first bone-key operations of which I have a recent x-ray picture. I have another in a woman of 79, operated upon one year ago. She went home in a chair on the eighteenth day and has since made a complete recovery. A man of 73 was operated upon eleven months ago with equally successful results. There has been no evidence of absorption of the neck of the bone. He walks everywhere and has absolutely no shortening. The only deformity he has is slight eversion of the foot.

Last week I operated for fracture of the humerus in a woman with senile dementia. Her condition was unfavorable at the time, and following the operation she developed general cellulitis of the upper arm which has gradually extended into the clavicular region. In my opinion this patient is going to die as a result of the extensive infection which occurred following the operation. People with senile dementia are notoriously difficult to manage, but I do not wish to evade any responsibility, even fatality under these circumstances. (Note: This patient has since made a good recovery).

CHRONIC PROSTATITIS AND ITS PRESENT TREATMENT.*

By Owsley Grant, M. D., F. A. C. S., and James R. Stites, M. D., Louisville.

In speaking of prostatitis we are referring only to that type of infection due to staphylococcus or bacillus coli and in a chronic state. There is no condition in urology that is more trying to both the patient and his doctor than is chronic prostatitis, for "once a patient, always a patient." There is no absolute cure for cases of chronic prostatitis,—symptomatically perhaps, microscopically never.

The symptoms of chronic prostatitis are many and varied. In the majority of cases the non-specific type is very insidious in onset and there are often no symptoms, the condition being diagnosed by massage during a physical examination. The symptoms in their frequency of occurrence are: perineal pain, sacral pain, morning urethral discharge, sexual disturbance,—as premature ejaculation,—pain in the joints, pain radiating down the legs, etc.

The fact that many cases of non-specific prostatitis produce no local symptoms, makes it all the more important that no examination for foci of infection in the male is complete without thorough investigation of the prostate and its expressed secretion, regardless of the resence or absence of venereal history and symptoms. By thorough examination, we mean at least three massages after prostatic diathermy has been given, as it has been our observation that deep-seated infection cannot be proved by one massage; but after diathermy and massage the secretion is much more profuse and the deeper follicles are emptied. This has been our experience in many of our patients, and in a paper some months ago we reported several of these cases and our results were most satisfactory.

There is one class of patients that we think warrant special attention, and they are the ones so often seen as compensation cases complaining of backache. If there is no evidence of sacroiliac injury, then thorough examination of the prostate is certainly indicated, as many of these patients do suffer from backache, and it is aggravated by straining. Chronic prostratitis is "lighted up" by congestion due to exercise and these individuals really have cause to think their occupation is to blame. Treatment of these patients brings most satisfactory results, and in all such cases a prostatic examination should be made.

That a patient may have a negative urine does not exclude deep-seated infection in the prostate, as many of the worst cases have gone undiagnosed for a long time because no pus was found in the urine.

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*Read before the Jefferson County Medical Society.

The secretion from an infected prostate varies from time to time. At one massage the secretion may be loaded with pus, at another very few pus cells found. There are usually motile sperm found but by far the majority of them are dead. Especially is this true where seminal vesiculitis is present or when there is sexual disturbance.

We want to dwell tonight mostly upon the treatment of chronic prostatitis for the other phases are as familiar to you as to urologists. There are many ways of treating chronic prostatitis and there is no great satisfaction in any of them. We wish to speak particularly of two newer methods and give you a brief summary of our results.

The treatment of this condition by means of urethral dilation, by topical application of nitrate of silver and phenol over teh prostatic urethra and verumontanum have proven their value. Irrigations have also been of benefit and we do not want to discredit them in any way; but it has been our observation that this type of prostatic infection responds far better when as little intraurethral manipulation is done as possible. It is practically impossible to sterilize the anterior urethra so that sterile instruments do not carry infection backward. Any urethral manipulation is a major procedure even where there is already little infection. We have made it a rule never to pass any instruments unless there is an associated posterior urethritis with frequency of urination or some sexual disturbance, such as premature ejaculations. In these conditions urethral work is always indicated. Cystoscopy reveals nothing except the picture of chronic infection, and when you have seen the picture of one chronically infected prostate, you have seen them all.

Vaccines have a role but a very slight one. We have seen no benefit from stock vaccines. Autogenous vaccines aid in causing subsidence of the toxic signs, but as to relieving the local infection they play a very small part.

The hot rectal irrigation is of benefit, but anyone who has ever tried to use it soon realibes that it is rather complicated and outside of hospitai no patient will use it faithfully. However, there is no treatment better than this in acute cases.

Massage in the treatment of chronic prostatitis is entitled to special reference, for it is our only means of getting rid of accumulated pus and secretion. Massage of the prostate is not as simple a procedure as imagined for great harm can come if not used properly. A prostate is best massaged on a fully distended bladder, for not only is it easier to massage, but that part of the infected secretion which gravitates backward into the bladder and that which stays in the urethra can be eliminated as soon as the massage is completed.

No prostate should be massaged more than two or three times a week at the most and gentleness is very important, not only on account of the danger of rectal irritation but also of injury to the gland itself. It is paramount always during massage to attempt to empty the vesicles, for prostatitis without seminal vesiculitis is rare.

The greatest advance in the treatment of this condition has been the use of diathermy. It, like the other things, does not cure, but it certainly speeds the stage where an occasional massage keeps the patient free of symptoms. We use diathermy in all our cases, starting with treatments two or three times a week. They are given from 15 to 20 minutes and from 500 to 1000 milliamperes. A large indifferent electrode is placed on the abdomen above the symphysis. The active electrode is placed in the rectum. No heat is felt on the abdomen as the concentration is nearer the smaller electrode and there is no danger of burns when this amount is given.

Following each diathermy the prostate is massaged. There is always an increase in the amount of secretion. It is never as painful to the patient to massage with diathermy as without. As the symptoms subside and the amount of pus decreases the intervals between treatments are lengthened and, as said before, these patients more rapidly reach the stage where occasional massage keeps them symptom free.

Within the past few years we have tried, and with good results, a new method of treatment. We will only touch on it lightly as the results of this have just been reported at the meeting of the Southern Medical Association in Memphis. The injection of argyrol and mercurochrome into the ejaculatory ducts suggested the trial of direct prostatic injection of mercurochrome through the perineum. We have tried this in about one hundred cases and our results have been very gratifying. Although some have been apparently cured even microscopically, we will not be so brave as to say we have a cure, but we do believe it will be an aid in treatment. All our patients, with a few exceptions, have been treated in the outdoor clinic at the City Hospital, and have suffered no discomfort save that due to the actual injection of the drug.

There are several things in regard to this condition to which we want to call your particular attention in closing.

I. No physical examination of a male patient is complete, especially in search for foci of infection, without examination of the prostate and its secretion by proper methods.

II. That with all modern methods of treatment, chronic prostatitis is never cured and that patients must be regularly treated at intervals to remain free from symptoms.

III. That a negative prostatic secretion at first massage does not exclude deep-seated infection; this is only proven by several massages after diathermy.

IV. That the true uncomplicated case responds better to treatment when no urethral manipulation is resorted to.

V. That prostatic massage is our greatest asset, but it must be done gently and not too often for great harm may result.

VI. That treatment by diathermy is our greatest implement at the present time and all cases respond nicely to it, and when properly given and watched the danger from burn is practically *nil.*

DISCUSSIONS.

Claude G. Hoffman: I enjoyed Dr. Stites' paper very much. I was particularly interested in his remark "once a prostatic, always a prostatic." I recall hearing an eminent urologist make that statement several years ago. I believe such a remark inspires fear and lack of confidence on part of the patient and there is produced one of the chief factors with which we have to contend in chronic prostatitis, namely neurasthenia. Doubtless the majority of us have heard chronic prostatics say: "Doctor, I do not believe I will ever be cured." They often say this doctor or that doctor told them they could not be cured, they have lost confidence, have become neurasthenics, and it is then a difiult task to restore confidence and improve their disturbed mental condition. We first have to get them interested in something besides themselves and encourage them in every possible way. When confidence is regained and co-operation of the patient secured, much benefit can be accomplished by treatment.

We have not made any great advancing strides during the last few years in the management of chronic prostatitis. Diathermy is practically the only new method of advantage. I have seen patients in whom, after repeated prostatic massage, the urine showed only four or five pus cells to the field, and after the use of diathermy for fifteen or twenty minutes, the urine was found loaded with pus.

The technique of prostatic massage is another important point. If you think there is an art in prostatic massage, let someone massage a prostate who is not accustomed to doing it, and see what hapens. We often have patients referred to us from outlying districts for diagnosis, and we send them back to their physicians with instructions as to treatmemnt, etc. Within three or four weeks the patient returns with acute prostatitis the result of improperly applied prostatic massage.

I think the application of heat is really useful only in acute inflammation. Dr. Stites in his paper did not include consideration of acute prostatitis. The treatment indicated in chronic cases is the use of prostatic massage at proper intervals, the instillation of suitable drugs, and the exhibition of remedies that will improve the general condition of the patient. Vaccines have been tried and found worthless in my hands. It is important in the beginning to inspire confidence and secure co-operation of the individual.

Dr. Stites spoke of intra-prostatic injections of mercurochrome. There is nothing new about this except that he uses mercurochrome instead of some other medicament. In 1916 Dr. Cano, a South American, claimed he had employed this method in two or three thousand cases of chronic prostatitis, observed in his clinic, with remarkably good results. He made the injections through the perineum into the prostate. At that time I was working with Dr. Terry Townsend, of New York, and had the pleasure of seeing a great many patients treated by this method after Dr. Cano came to this country. Dr. Townsend met the gentleman on board ship as he was anxious to learn about this new method of treatment. At first Dr. Townsend was rather skeptical, but after using the method for a time began to get good results. I then returned to Louisville and used this method in a series of twenty-five cases, but was not satisfied with it as the reactions afterward were terrific and the benefit obtained was questionable. I think one of the important points overlooked was that injection was made into the prostatic capsule until it was as tense as it could be made. In my opinion that was a mistake as it undoubtedly produced more or less destruction of tissue. I believe Dr. Stites stated that he uses 2 to 5 cc. of mercurochrome solution, this amount being injected into each lateral lobe. According to the method of Dr. Cano, we injected 15 to 20 cc. into each lobe.

After two or three years an attempt was made to interest a pharmaceutical house to place this preparation on the market, but the proposition was refused until after the method had gone through the experimental stage. Dr. Townsend claimed that the experimental stage had already been passed. However, he discontinued the method, and so did I after treating the series of cases mentioned, because we were unable to secure the serum. I think the basis was normal horse serum containing four per cent phenol.

Dr. Cano then went to Paris and succeeded in interesting a pharmaceutical concern there in his preparation and it can now be obtained from that source. I had a letter from Dr. Townsend quite recently saying he had just returned from abroad and brought a large number of the ampoules with him. He promised to send me some of them and I shall be glad to make another trial of the preparation along the line mentioned by Dr. Stites in which he uses mercurochrome.

After all, the treatment of chronic prostatitis by the intraprostatic injection method is difficult and uncertain in its effect. We are dealing with a compound gland containing many acini any or all of which may be the site of infection, and while the injected medicament may reach a few of the infected areas it is extremely doubtful if all of them can be penetrated by the needle. The proposition of chronic prostatitis is quite different from dealing with an infected tonsil or tooth, either of which may be readily and quickly eradicated, and the source of infection removed at once; but cases of prostatitis generally occur in men before middle age, and we are not often justified in removing the prostate of a young individual.

I agree with the essayist that after prostatics have been treated over a long period of time they are prone to become neurasthenic and continue coming to us for treatment year after year. The most difficult feature with which we have to contend is to retain their confidence. If we can do that and keep them encouraged and "buoyed-up" so to speak, much benefit may be accomplished by persistent treatment according to the methods now in vogue.

I wish Dr. Stites would tell us in closing what his experience has been with mercurochrome injected through the perineum in cases of acute prostatitis. In using the phenolized serum better results were secured in acute than in chronic cases. This seems to be contrary to the experience of others. Cases of acute epididymitis and acute prostatitis seemed to respond to treatment a great deal better than chronic cases. Some of you may remember that we had a series of acute cases at the city hospital clinic when I had Dr. Townsend visit us in 1917 and he selected these acute cases for demonstrating his method of treatment. In some instances the escape of pus followed immediately through the needle which was evidently introduced into an encapsulated abscess. In my personal series of twenty-five cases treated by the injection of phenolized serum there was absolutely no beneficial effect in the chronic type except in two cases. In acute cases fairly satisfactory results were obtained. I recall Dr. Townsend stated at the time that he had seen cases of acute gonorrheal epididymitis and prostatitis disappear like magic after one injection of phenolized serum.

Edward R. Palmer: Dr. Stites has given us a very interesting paper. There are some points I think which should be particularly emphasized and impressed upon the general practitioner. It seems to be a very generally prevailing idea that nothing ever becomes the matter with the lower urinary tract unless due to infection by the gonocccus. Consequently a man with a negative venereal history may have chronic prostatitis for many years without the general practitioner ever thinking of its possibility. I see such patients quite frequently who have taken all kinds of remedies for the relief of their so-called rheumatism, lumbago, etc., when the simplest examination would have shown that the focus of infection was in the prostate.

As Dr. Stites has so well stated, no male who shows evidence of focal infection has ever been thoroughly examined until his prostate has been massaged and the expressed secretion examined under the microscope. This should not be confined to one examination, for it is not uncommon that two, four or more must be made before the material expressed shows pus. As we all know the bacteria that are merely superficial are not the ones that cause the greatest disturbance, it is those that are absorbed into the system. In other words, it is the deeply embedded micro-organisms that are the cause of the trouble.

I had the pleasure of seeing Dr. Terry Townsend demonstrate the method of treatment in this clinic as described by Dr. Hoffman. He called his preparation methylene blue, phenol and horse serum. I must say that any attempts to relieve chronic prostatitis by intraprostatic injection methods seems to be a little far-fetched. If you will stop to consider the anatomic structure of the prostate the reason for this statement becomes apparent. The prostate is composed of forty or more individual glands, all more or less distinct from one another, and it may be a dozen or more of these are infected while the others are not. By the injection method the needle is introduced blindly and some substance injected directly into the tissues with the hope of sterilizing them. It seems to me,—and this gives me an opportunity to ride an old hobby of mine,—that by this method you are going to the extreme in trying to destroy micro-organisms in human tissues by the introduction of chemical. That, gentlemen, cannot be done without at the same time destroying the tissue in which the organisms exist.

Unfortunately, as some of the other speakers have mentioned, when chronic prostatitis has existed for any length of time, and when we see these patients the infection is nearly always of five to ten years duration, it is practically an incurable disease. That should not surprise us in the least. The situation is not comparable to an infected tooth are tonsil the subject of chronic infection. Either of these can be readily removed and that is the end of it. We must realize that a prostate gland that is chronically infected cannot be removed, for this alone, we must treat it with due respect and secure the best results we can. This is to be done by systematic prostatic massage, by instillations, by irrigations, by dilatations and various forms of electrical treatment. This treatment, none of it, has any direct action against the micro-organisms. The principle effect of it is mechanically emptying the obstructed follicles of the gland. However, that is not all massage does; massage by getting rid of the material and by stimulating the gland promotes the circulation thereby bringing fresh blood to the prostate, which with its normal bactericidal properties will reduce the infection. As for accomplishing these results by injecting mercurochrome or any kind of chemicals into the substance of the prostate, or by any kind of electrical treatment with the expectation of destroying bacteria in the follicles, I think that is impossible. I do not believe that heat itself has any direct effect, all it does is to stimulate the tissues.

I have never used diathermy, but have for many years employed what is known as electrolysis. In this method the active electrode is introduced into the posterior urethra and a weak electric current passes from the positive to the negative pole. This current passes through the prostate outward into the posterior urethra and has an electrolytic action. To illustrate how this will act, take a man who has prostatitis, have him urinate and then if deemed desirable irrigate the bladder until the fluid is returned free from shreds and everything else. Then insert the electrode and allow a light current to pass through for a while. Then alternately, break and make the current. As a result of the makes and breaks in the current there takes place what I call intra-urethral massage. The breaking of the galvanic current causes contraction not only of the perineal muscles but all the muscles of the prostatic urethra and all the small muscles around the glands and follicles. After having done that introduce irrigating fluid into the bladder and when the patient urinates it will be found that the fluid contains plugs, flakes and masses of material similar to those seen after prostatic massage followed by irrigation. Benefit will be derived from all these different things, but it must be remembered they have no direct action, it is simply the stimulating effect of whatever may be used. I, for one, do not believe mercurochrome, phenolized serum or anything else injected through the perineum into the prostate will have any beneficial effect.

Owsley Grant: The treatment of chronic prostatitis is so complicated and there are so many features which are imperfectly understood that I shall confine my remarks to points upon which there is more or less agreement. As we know the prostate is a racemose gland surrounded by muscular tissue into which it has been claimed it is impossible to introduce sufficient medicament of any kind to cure the disease. I am not taking issue with Dr. Palmer for the simple reason that I have not accumulated enough data at the present time to proceed along that line.

Our idea in the beginning of our work with mercurochrome was this: that in treating infection of the anterior urethra it is the custom of practically all urologists to inject some type of drug into the urethra that is supposedly antiseptic. Just how much antiseptic power mercurochrome has we do not know. Dr. Young in his talk at the Memphis meeting made a very interesting point when asked what mercurochrome did after being injected intravenously. He said: "If you will tell me what happens in a case of pneumonia where the patient's temperature is 104° to 105° F. and the disease then suddenly terminates by crisis; if you will tell me what happens there in the ordinary processes of nature, I will tell you what happens after iculitis has been conducted for quite a while results are the same.'

The treatment of prostatitis and seminal vesticulitis has been conducted for quite a while by injection of the vas deferens, that is by performing vasotomy and introducing one of the silver salts. Later mercurochrome was used for this purpose. In either event it was hoped that some of the solution would reach the prostatic acini. This it seems to me is somewhat along the line of Dr. Townsend's work although he used the perineal route just as we are now doing. If we are able to introduce mercurochrome into some of the acini, maybe not all of them,—but if we can get a fair amount of mercurochrome into these infected areas, we have some chance of overcoming the infection just as is being done by introducing antiseptic solutions into the anterior urethra.

The technique of injecting mercurochrome through the perineum into the prostate is not difficult. The vesical cavity is first well distended with fluid to bring the prostate well downward. A long needle is inserted through the perineum and 3 cc. of mercurochrome injected on each side of the median raphe, the gloved finger of the left hand being kept in the rectum. The final step in the procedure is gentle massage of the prostate endeavoring to express all the accumulated material possible. The voided urine always shows the bright red color of mercurochrome. We have these patients return every other day for a period of three weeks or a month at which time the prostate is again massaged. We have found mercurochrome in the expressed prostatic secretion as late as two weeks after the original injection.

We are not offering this as a cure-all. I wish we did have one. However, in the series of more than 100 cases that we have treated within a comparatively short time our results have been extremely gratifying. While pus in the expressed prostatic secretion has not been reduced to the vanishing point, yet in the majority of cases there has been a marked diminution in the number of pus cells. I hope in the course of another year we will have more clinical and pathological data on which to base our opinions.

Dr. Palmer mentioned a feature which is most important, i. e., that the prostate is not always infected by continuity of tissue, the infection does not always come through the urethra. In many instances the infection must be hematogenous, and this helps to remove the stigma from a man when we find pus in his prostate and he absolutely denies ever having venereal disease.

A word or two about diathermy. There is nothing new in this. It is of value simply because of the stimulation it produces and expanding the ducts thus allowing the secretion to be expressed more freely. The electrical part of diathermy amounts to nothing, there is really little or no current, it simply creates heat in the prostate which is easily controlled by the proper sized electrodes. The application of heat in this way does nothing more than expand the ducts and perhaps promotes circulation.

Stephen C. McCoy: My experience seems to differ somewhat from that of some of the other speakers. Individuals coming under by observation in private practice for prostatic disease usually have tumors or enlargements causing obstructive symptoms. In most cases it is then too late to institute preventive treatment. I suppose the method of injection through the perineum described by Dr. Stites is intended as a preventive measure. I cannot quite understand the physiology and mechanism of injecting mercurochrome in the manner outlined for the relief of chronic prostatitis. Although the medicament may be injected on both sides of the median raphe, how can one be certain of reaching the involved acini? Furthermore, it seems to me some difficulty would be encountered in introducing a needle through the perineum into the prostatic tissues without some form of anesthetic. I understand in the method described by Dr. Stites no anesthesia is used. I confess that I have had no personal experience with the perineal injection procedure, as most of the chronic prostatics that I have seen have applied for relief of obstructive lesions with residual urine and other symptoms of this nature.

Charles W. Jefferson: My views in regard to the injection of medicament of any kind through the perineum into the prostate are in accord with those expressed by Dr. Palmer. I think the method is attended by more or less danger and is uncertain in its results. I recall that when Dr. Townsend was here he and the late Dr. Bronner employed this method in a number of cases without any beneficial effects. Dr. Hoffman, as he stated, also gave the method a trial about that time and his results were disappointing.

I cannot agree with the statement that every case of chronic prostatitis is hopeless, although it may be true that many of them are. However, persistent treatment by massage, sounds, instillations, applications of nitrate of silver to the verumontanum, and vaccines, assist in the cure of many cases. I use methylene blue internally which I believe is of benefit. This color can be massaged from the prostate after the patient has taken it for a while per orem, the same as mercurochrome can be massaged from the prostate after direct injection into the gland.

My objections to the direct injections of any solution or chemical into the prostate are: First, there will be destruction of portions of the gland by a locked-up chemical; second, distension of the gland would produce necrosis from pressure; third, as the needle is withdrawn, the prostate being distended with the solution, there would be a tendency for some of the fluid plus infection (bacteria) to pass into the tissues between the rectum and the urethra with possible abscess formation; fourth, certain portions of the gland must be cut through by introduction of the needle with resulting injury to it. I therefore do not believe in the procedure, and, after all, only a portion of the gland would receive direct medication. Again, the vesicles are often involved, the chemical could not reach this locality, and the infection would be passed downward again into the prostate.

Often a chronic prostatitis is terminated by the patient developing an acute epididymitis with high temperature. I have seen chronic prostatitis subside with permanent cure following typhoid fever, pneumonia or scarlet fever. Just what takes place here I do not know, but a cure is affected often by the development of other diseases where a high temperature persists for some time.

Irwin H. Cutler: I have been particularly interested in Dr. Stites paper and the discussion because of the role the prostate plays in focal infections. More and more are we coming to recognize the prostate gland as an active focus of infection, not only in the production of local urinary and sexual symptoms, but also general symptoms as well as disease in remote parts of the body. Another important observation is the apparent relationship that exists between the infected prostate gland and other foci of infection, for example: teeth and tonsils. The removal of remote foci of infection will often result in improvement of prostatic disease after local measures have failed.

I am not quite as pessimistic as Dr. Stites and several of the other speakers in regard to the cure of chronic prostatitis. If the nidus of infection can be definitely attributed to the gland alone, local treatment properly applied will often effect a cure or at least reduce the number of pus cells to a low figure. One of the most difficult phases of treatment is to keep the mind of the patient away from his troubles and retain his confidence and cooperation. Prostatic massage performed once or twice weekly is an important asset in the treatment, but it must be given correctly, and gently to be of any benefit. An occasional intermission from local treatment with the use of tonics and other general measures directed toward improving the general resistance of the patient, will be effective.

A word or two in regard to diagnosis: In male patients whose symptoms might possibly be dependent on foci of infection, the prostate gland should be thoroughly investigated. Frequently the infection is in a latent form and examination of the secretion fails to reveal pus, though there are suspicious symptoms. In these cases, provocative stimulation should be practiced. A full sized sound is passed in the bladder, or the posterior urethra is dilated carefully with a Kollman dilator followed by the instillation of ½ of 1% silver nitrate solution in the posterior urethra. The secretion is examined on successive days. Usually this procedure will disclose infection where other methods fail.

James R. Stites (in closing): I wish to thank the gentlemen for their liberal discussion of my paper. Someone asked about injecting the ejaculatory duct: This is readily accomplished by using a small tube through a cysto-urethroscope. We are using argyrol solution for this purpose.

In regard to the injection method in acute prostatitis: When we began injecting mercurochrome we had in the hospital a few patients with acute prostatic abscess. The abscess was penetrated with the needle and mercurochrome then injected. I do not know that recovery was any more rapid following this method than when other measures were used. Pus was present in the prostatic secretion for some time in all these cases, but the symptoms seemed to subside more rapidly when mercurochrome was used than after hot rectal irrigations and other measures were employed.

Dr. Cutler spoke about the teeth and tonsils playing a part in prostatic infection: I recall one man we had under treatment for some time for prostatitis where the secretion contained five to eight pus cells in each high power field. Examination disclosed that he had an abscessed tooth. This tooth was extracted on Monday and when he came for prostatic massage on Thursday the secretion was absolutely loaded with pus. The patient made a prompt recovery. I do not know whether extraction of the abscessed tooth had anything to do with it or not.

THE PROSTATE GLAND.*

By H. B. Blaydes, LaGrange.

The prostate is the analogue of the uterus. It is situated at the base of the bladder and is somewhat pyramid in shape, the base lying against the bladder and the apex is directed forward and is fixed to the deep layers of the triangular ligament.

The posterior surface rests upon the rectum and is about 1½ ins. long, the transverse is 1½ to 2 ins. It is incorporated with the muscular wall of the bladder anteriorly, but posteriorly it is free from the bladder. The capsule is formed by a coalescence of the muscular sheath of the organ and the enveloping pelvic fascia. The complicated reflections of the rectovesical fascia bind the prostate to the surrounding structures. The periprostatic plexus of vein lies in the layers of the rectovisical fascia. The arteries which supply the prostate are small. The seminal vesicles lie above the prostate converging anteriorly. The levatoris muscles are laterally. The recto urethorolis muscle connects the membranons urethra and the anterior wall of the rectum. The spermatic ducts pass through the substance of the gland. The ducts pass between the lobes below the urethra and empty at the sides or in front of the colliculus anterior to the colliculus. The gland is not closely connected to the urethra but posterior to it the connection is very close.

HYPERTROPHY OF THE PROSTATE.

Hypertrophy of, or enlargement of the prostate gland is the result of a hyperplasia of its tissues is by far the most important, although by no means the most serious condition the surgeon is called upon to treat. This hyperplosia may affect the glandular elements, the nonstriated muscle, the interstitial connective tissue or all three. It may be confined to one lobe or it may involve both lateral lobes and the central or middle lobe. The new structures consist chiefly of connective tissue with a moderate amount of muscle fibers.

Prostatic gland diseases are classified into two classes, the acute and chronic. As the time is limited to this paper I will only consider chronic hyertrophy of the gland. In old men difficulty of micturition is due to obstruction by changes in the stroma and body of gland and may be brought about by different forms of growths, some of the most important are abscess, prostatic fibrosis, malignant diseases, carcinoma, sarcoma, tuberculosis of the gland, however, the one condition that confronts us most and by far the most common of this disease is plain every day senile hypertrophy of the gland. As a general thing a senile change occurs after the age of fifty, but more often after sixty, it is rare for enlargement of prostate to cause symptoms much before the age of fifty and the per cent of cases lessen after 80 years of age. There are some who oppose the view that prostatic enlargement is essentially a senile change. For instance, Dr. L. Bolton Baugo, Journal of Dermalology and Genito Urine Diseases, Mar. 1901, maintains that the change is not senile, that it really begins early in life, but that its effects are not manifested until during or after middle age. Some say this gland does not get to be of sufficient size to cause symptoms until after middle life, as the growth progresses slowly.

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*Read before the Oldham County Medical Society.

Among the causes mentioned are senile hypertrophy, arteriosclerosis, calculus of large size, chronic gonorrhea from chronic posterior urethritis, sexual excess, traumatic prostate, which is rare, altered testicular secretion, altered prostatic secretion of the chemical action of pathologic proteins resulting from irregular metabolism, or derived from disintegration of the secretions and numerous other causes. While the real cause of various forms of prostatic enlargement is not definitely known, it is said that malignancy or malignant changes in hypertrophic prostate gland is much more common than was formerly thought to be. Some of the early symptoms of enlarged prostate are the renewal of passion plus morning erections and leads to unjustifiable confidence in sexual power, a morbid propensity to matrimony or to women is a frequent early symptom. In 90 per cent of cases there is very trivial inconvenience, the patient being annoyed by episodes of nocturnal and less urgent diurnal frequency of micturition during day, while patient is active, circulation and muscular activity there are less symptoms, but after going to bed there is venous congestion of prostate and at base of bladder, hence the vesical irritability. There are polyuria and it is most marked at night. This gradually progresses in the second stage which is a repetition of first stage, growing more pronounced or severe until the third stage in which 10 per cent of all cases the bladder is unable to empty itself completely and residue urine collects. The second stage may last from 1 year to several years. Third state frequently attacks of retention of urine occurs. The bladder dilates greatly with the over distended bladder, the sphincters relaxes every few minutes, allowing dribbing or drops of urine to pass. In the majority of cases the diagnosis can be made by rectal palpation, is case of purely middle lobe hypertrophy the cystoscope must be relied upon. In rare cases the middle lobe causes incontinance by its growth toward the neck of the bladder. The urine is of low specific gravity, the patient becomes somnolent and the tongue dry and parched, the kidney may become involved and suppression may occur, septic fever may arise, calculi may form in bladder, death being due from exhaustion, suppression of urine or septic cystites. A foul catheter is the usual cause of septic cystites. Micro organisms sometimes pass or enter along urethral mucous membrane.

A patient should be examined by rectal touch, by sound and by cystoscope if possible. The amount of residual urine determined and its condition carefully examined, the presence or absence of stone in bladder. After an examination with instruments patient should stay in bed, quiet for twenty-four hours.

PROGNOSIS

Good, if patient is strong with kidneys functioning well and with infection and cystites controled by drainage and proper preparatory treatment is carried out, age seems to cut very little figure as to a favorable outcome in large per cent of this class of cases.

TREATMENT IS OPERATIVE.

The operation which is almost universally practiced is suprapubic prostatectomy and perineal prostatectomy. When the latter is performed under vision it is as safe as suprapubic, a great many operators think safer and can be rapidly performed and is the desirable route where the gland can be palpated in extent with finger in rectum, and for direct drainage it is the ideal operation according to Dr. Francis Watson, 1904, the mortality in 203 cases of perineal was 2.9 per cent, in 563 cases the per cent was 5.5. Albarron had mortality of 4 per cent, Young 4.6 per cent, John B. Murphy 3.9 per cent, in 190 cases of blind enucleation through the perineum was 4.7 per cent. In most cases it takes about three weeks for wound in perineum to heal. Complications in small per cent of cases perineal urinary fistula is established. I will not go into details of each operation as it would take up lots of time to cover the field thoroughly.

Suprapubic prostatectomy is said by some to be less safe but easier to perform than perineal. It gives excellent results for drainage where there is cystitis or infection in bladder as a preliminary precaution to removal of gland and where the central or any part of the gland extends into bladder or extremely large growths, or extensive fibrous and malignant growths. As I have said before I will not describe either operation except to enumerate the different operators operative methods most commonuly used when performing the two common operations.

Suprapublic total prostastectomy.
Dr. Freyers' method.
Dr. McGill's operation.
Dr. Fuller's operation.
Dr. Belfuds operation.
Dr. McCalls' operation.
Dr. Alexander's and numerous other.
Perineal prostatectomy.
Dr. Bryson operations.
Dr. Young's operations.
Dr. Bottins' galvanocaustic prostatectomy.

And in conclusion I will relate my own experiences in three cases, two in the last few months; one was 66 years of age and the two last were 75 years of age. My procedure was the same in all three cases. After making a diagnosis from history, symptoms and rectal examination, with finger in rectum, they were put to bed, one or two good purges administered, urine tested for albumin sugar and quantity in 24 hours, then soft rubber catheter passed under strict asepsis conditions and fastened in well to take place of retention catheter, and bladder irrigated three times a day with boric acid solution for four to seven days, last two days with 15% solution argyrol solution thrown into bladder twice a day, until morning of operation. Bladder was washed out well and the usual perineal prostatectomy performed with splendid results in all three cases from four to six weeks.

Effect of Iodine in Toxic Adenoma.—The response to treatment with iodine in thirty unselected patients with toxic adenoma who were previously untreated with iodine was essentially the same as that seen in unselected cases of exophthalmic goiter. Whatever differences exist are apparently quantitative, not qualitative. Youmans and Kampmeier believe that any essential difference in the pathogenesis of toxic adenoma and exophthalmic goiter cannot be assumed to exist on the basis of this response to treatment with iodine.

DEMENTIA.*

By T. G. McConnell, LaGrange.

Definition: *"A disorder of the intellect characterized by loss or feebleness of the mental faculties."*

Pathology: The condition is arrived at in several ways, capable of being traced in the mental history of the patient, and is represented by deterioration of mental function, and extending from failing memory, slight confusion of thought onward to utter fatuity.

Some have afforded examples of melancholia and were perfectly conscious of all that passed around them. Some have been maniacal; others have suffered from the severe delirium of fever or sunstroke; but after a partial recovery from these immediate affections, and by slow graduations the mental faculties become dulled, confused, and finally obliterated. Others again lose their faculties by reason of extreme old age—senile dementia. All such cases are remarkable by their conversation and acts, which greatly resemble infancy; and the mental alienation is indicated by the disorder of ideas, affections and determinations. Feebleness is the essential characteristic of this form of intellectual disorder, and there is abolition more or less marked, of all the sensitive, intellectual and voluntary faculties. In its various stages dementia passes from its slightest and most incipient form to that in which the patient has no longer any just perception of the objects around him, can no longer reason, has completely lost the comparing faculty, and has left to him little more than the functions of vegetable and animal life. There is no judgment, either true or false. On the slightest excitement, some dements are liable to maniacal outbursts.

If dementia is long continued, its outward signs become well pronounced in the face of the patient. The vacant and puzzled look, the lack-lustre eye, weak smile, the meaningless laugh, betray the vacuity of mind.

Its varieties are acute and chronic dementia. Denments may become paralytic and a thickness of speech may be the first symptom of its approach. After a time the speech is more manifestly affected, followed by the loss of power in the limbs one one side, more marked in the lower extremity, so that the step is feeble and straggling. In the last stage they are completely paralytic, and only able to utter a few unintelligible sounds, presenting then general paralysis of insane.

Among the physical symptoms most commonly noted are poor nutrition in early stages, as deterioration becomes more marked many patients grow more stout; dermography, increased perspiration, cold mottled hands, dilated pupils, exaggerated knee jerks and amenorrhea.

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*Read before the Oldham County Medical Society.

Persons who develop dementia praecox, as a rule, have a defective heredity and have presented symptoms in early life that marked them as different from their fellows, a tendency to keep by themselves, to be over religious, to indulge in day dreaming and immature philosophizing. A lack of application and a general inefficiency seem to have characterized their course in life. Sometimes an emotion shock or exhaustion from some acute disease is the last straw, and the vagaries of the poorly balanced organization then rapidly become apparent. In other cases the disease cannot be traced to any sufficient cause. Periods of unprovoked anger are common, they destroy their clothing, fight patients, silly laughter, and so on, without any purpose back of their acts. These persons are apathetic in the performance of their accustomed tasks, indifferent to the sorrow of others and often either irritably resistive or provokingly unresponsive to all efforts made to awaken interest in things about them. The memory of past events, especially school knowledge may be surprisingly good, even when the patient is much deteriorated. The patients may talk clearly and apprehend well their surroundings or may seem unconscious of every thing. They may speak only in monosyllables or make irrelevant replies or persistently refuse to speak for weeks or months at a time, giving the impression they do not appreciate anything happening. Yet when this phase of the disease gives place to another they may tell accurately what happened during the period when they appeared to be oblivious to everything. They may talk and whisper to themselves by the hour, may be given to using stilted, high sounding phrases or to coining meaningless words. In conversation, they sometimes show a disposition to trifle and deceive and the most absurd beliefs. There often seems to be some interference to think. Also an inability to distinguish the real from the unreal. Sometimes these patients evince a stealthy curiosity but instead they may stand for hours gazing at a spot in the ceiling, smiling, listening to voices or seeing visions. They take up from time to time many oddities, tricks of speech, or action, senseless stereotyped motions or expressions. One patient may repeat for hours, Don't say nothing, nothing, nothing. Another may grunt or make chewing motions or walk a certain plank of the floor.

Some patients seem oblivious to their friends, betraying no sign of consciousness to them beyond that of devouring food and dainties brought them. They may also refuse food for days. Their whole dress and bearing betrays a delapidation that is unpromising for mental restoration. Self-absorbed, unconcerned, apparently feeling neither joy nor sorrow. Often stare for hours into vacancy. Wholly occupied with the hallucinations that are as prominent an accompaniment of this disease. Yet some patients show marked improvement and some make recoveries though their field of usefulness must remain circumscribed, since their character is made up of such fimsy, flaccid material, and their impracticable schemes are so likely to come to naught.

NEWS ITEMS

The Lexington Leader, the leading Republican paper in Kentucky, published serially the following editorials regarding the "Ripper Bill":

A PERNICIOUS AND INDEFENSIBLE BILL

A bill has been introduced into the Legislature which will strike, if passed, a deadly blow at the State Board of Health. It is House Bill 463, which seeks to change the system of selecting and organizing the Board so long in operation and with such splendid results.

At the present time three men are selected by the Kentucky State Medical Association from which the Governor chooses one man to be appointed a member of the Board, until all the places are filled. No other body or group of men in Kentucky can possibly be as competent as the physicians of the State in their organized capacity to make such recommendations to the Governor, and no other body of citizens can possibly be more unselfish in making such suggestions or more concerned to have only the best representatives of the profession to carry on this important work in the interest of the public health.

The plan has worked so well, in fact, and the State Board of Health as it has functioned heretofore has been so capable and so conscientious and energetic, that its methods and its successes have attracted national attention, and other States, among the most progressive, have patterned their organization after that of Kentucky.

The attempt is now being made, as it has been repeatedly made in the past, to put the State Board of Health into politics, and to take from the medical profession the responsibility which has rested upon it and which has been so fully and ably met. The proposed bill would ignore the profession and its wishes and judgment, and would give the Governor the appointive power and the power of selection combined, subject only to the action of the Senate and with its advice.

The membership of the Board, moreover, would be divided "as nearly as possible between the two major political parties," and one homeopath, one osteopath, and one eclectic practitioner would be placed on the Board, the other members to be of the allopathic school.

This Board, upon the call of the Governor, will meet and elect a secretary, who shall become ex-offico a member of the Board to serve four years, and to be under the control and direction of the Board, to be removed by the Board as a member and as secretary at any time, with or without cause. All members shall be "legally qualified practitioners" except one, who shall be a registered pharmacist.

The mere statement of the salient features of this bill condemns it. It is pernicious and indefensible, the product of personal feeling and a political feud, an effort, principally, to remove the present highly efficient Secretary of the State Board of Health whose work has commanded the approval and gained the support of the medical profession and the great mass of the people of Kentucky.

So far as the physicians of the Commonwealth are concerned the number of those who are opposed to the Secretary, who for a comparatively small salary has devoted himself for years with the greatest vigor, earnestness, and success to the work which perhaps no other physician as preeminently fitted for it would undertake to do anything like the compensation, is insignificant. With Doctor McCormack it has been a labor of love, as it was with his gifted father, who organized the health work in Kentucky and carried it on with great success for many years.

At a called meeting of the House of Delegates of the State Medical Association in Louisville, on February 13, eighty-five trusted and distinguished physicians from all over Kentucky condemned this proposed legislation, and sent a resolution to the Governor, the Lieutenant Governor, and both Houses of the Legislature urging its defeat.

The Lexington Leader is confident that the people of this State, if they knew what was being attempted, would be thoroughly and righteously indignant. It can hardly be conceived that such a bill can be passed or that the Governor could be induced to sign it if it were passed. Every organization in the State that is in the least concerned about the public health, and all who prize the good name of Kentucky, should act at once to have this measure killed.

It may be added that there seems to be no reason why the various recognized schools of medicine should not be represented on the Board under the present plan, as a simple matter of justice.

HEALTH BOARD AND STERILIZATION BILLS

The House of Representatives of the Kentucky Legislature should be congratulated upon having defeated the bill which would have thrown the State Board of Health into politics, and no doubt resulted in undermining its usefulness. Every effort was made by those who for years have repeatedly attempted to repeal the present law, without avail, to accomplish their purpose. There were enough men of intelligence and integrity and clear understanding to stop the drive. No doubt there were a number who voted for the Howard bill, perhaps including Mr. Howard himself, who were honestly convinced that the proposed change would be salutary. But those behind the movement, and who initiated it, knew what they were after and employed every strategem to reach the end in view.

For the time the State Board of Health is safe. Its splendid work will go on. Kentucky has been saved from a backward step. It still stands among those in the front rank among the States in the treatment and solution of the great problems which from time to time confront the health authorities and the entire medical profession. The doctors of the State stood like a granite wall against the "ripper bill," as it was called, and they have won a notable victory.

It is new life to the profession and the State Board of Health to demonstrate still more conclusively the wisdom of the present law and the high efficiency of the administration of which Dr. McCormack is the head. No doubt another attempt will be made two years hence to make the changes provided for in the Howard bill.

The House of Representatives should also be warmly commended for having passed, by a very heavy majority, the sterilization bill, which provides for operations in certain cases to prevent delinquent and deficient wards of the State confined in institutions from propagating their kind.

This operation, which is simple, painless, and without effect upon the normal functions except to make parenthood impossible, will be carried out under the strictest regulations, the patient being guaranteed the right to an appeal to the court.

But it is, in fact, an act of kindness. Many inmates of the State institution can thereupon be released with safety and can go their way, some of them to become more or less normal and useful citizens. They can not be happy while confined. They have a great desire for freedom, and while they can not be rescued from the level of low-grade intelligence upon which they are doomed to live, they can be granted their liberty and made much happier than at present.

But society must protect itself as well as think of the interests of those who should be permitted to further populate the State with the idiots, imbeciles and insane, whose ranks are being constantly recruited. From 1880 to 1923 there has been an increase of 553 per cent in the number of patients in hospitals for mental diseases, and in the same period the number of patients per 100,000 of total population has increased from 81.6 to 245.

There are today 23 States that have sterilization laws, and in none of them have any undesirable results been noticd and no injustice been done. In California more than 7,000 persons, who otherwise must have been kept in strict confinement, have been sterilized, and many returned to their homes. Large numbers of the inmates of the hospitals in that State have asked to have the operation performed upon them when they have learned of the good results.

Investigations which have been carried on for a generation have shown that feeble-minded parents never produce a normal child. If one parent only is of this type, and the other of superior intelligence, the offspring may be above the low level of the subnormal father or mother, but noth otherwise.

The Supreme Court declared in the Virginia case: "We have seen more than cnce that the public welfare may call upon the best citizens for their lives. It would be strange if it could not call upon those who already sap the strength of the State for these lesser sacrifices, often not felt to be such by those conucerned. in order to prevent our being swamped with the incompetent."

SPECIAL TRAIN SERVICE TO MINNEAPOLIS

On Sunday night, June 10th, there will be special train service over the Chicago Great Western from Chicago to Minneapolis for the exclusive use of members of the American Medical Association who will attend the seventy-ninth annual convention to be held at Minneapolis, June 11th to 15th.

If you plan on attending the convention, a most cordial invitation is extended to you, your family and friends, to join the special train delegation. A very pleasant trip is assured, not only for your travel comfort, but for the opportunity you will have to meet and visit with friends on the train en route to the convention.

The A. M. A. special train will be a de luxe all-steel-all-pullman train consisting of the newest type of equipment, including Club Car, Observation-Lounge Car, and Dining Car serving dinner on leaving Chicago and breakfast before arrival in Minneapolis.

Train Schedule.

Leave Chicago 6:30 p. m., Sunday night, June 10
Arr. Minneapolis 7:50 a. m., Monday morning, June 11.

The Chicago Great Western Railroad is the only road with direct service between Chicago and Minneapolis with optional routing via Rochester with no additional cost, and is best situated to serve the members of our Association.

In addition to the special train service this road will provide between Chicago and Minneapolis, it operates the fastest and best service between Minneapolis and Rochester. Its running time between these two points is two hours and fifty minutes. During the convention regular and special coach and parlor car service and overnight pullman service will be operated.

Location of Parking Space of Special Trains at Minneapolis and Rochester.

Special A. M. A. trains operated over the Chicago Great Western will be parked six blocks from the loop in Minneapolis. Street car, bus and taxi service will be available to members.

In Rochester special cars and special trains of the Chicago Great Western will be parked two blocks from the heart of the downtown district.

Purchase one-way ticket to Minneapolis, taking a certificate receipt from the ticket agent. Be sure that your ticket is routed over the Chicago Great Western from Chicago to Minneapolis. The certificate receipt will enable you to secure return ticket at half fare.

Make Reservations Early.

If you contemplate attending the A. M. A. convention, we suggest that you make your sleeping car reservations now, in order to make certain of Pullman accommodations.

Write to R. A. Bishop, General Passenger Agent, Chicago Great Western R. R., 122 South Michigan Blvd., Chicago, Ill.

Dr. Karl N. Victor announces the removal of his office to Suite 401, Breslin Building, Louisville, Kentucky. Practice as formerly, ear, nose and throat.

Office Hours: Daily 10 to 4 and by appointment. Sunday by appointment. Telephone: Office—City 5145; Residence—Highland 4051.

Dr. I. A. Arnold announces the removal of his offices from the Francis Building to Suite 626, Breslin Building, Third and Broadway, Louisville, Kentucky. Practice limited to bone surgery and orthopedics after May 1st.

WOMAN'S AUXILIARY NOTES

KENTUCKY AROUSED

By Mrs. A. T. McCormack.

To the women of Kentucky belongs much of the credit for the aroused public opinion which killed the Ripper Bills (House Bill 463 and Senate Bill 493) in the 1928 Session of the House of the General Assembly at Frankfort and kept the State Board of Health under the supervision of the medical profession. Realizing that the medical profession is the only body of citizens qualified to assume the responsibility of guardians of the health and the lives of the people, women in all walks of life, throughout the Commonwealth, worked and prayed without ceasing that the State Board of Health be saved from the perils of politics and politicians.

Foremost in action was the Woman's Auxiliary to the Kentucky State Medical Association with the following letter sent to the obtainable addresses of the wives of Kentucky physicians:

Harlan, Ky., Feb. 15, 1928.

My dear Mrs. Doctor:

It is perfectly evident from the doings of the political tricksters amongst the lobbyists at Frankfort that a strong attempt is being made to throw the State Board of Health into partisan politics.

For fifty years, as you know, public health work in Kentucky has been the responsibility of our husbands, the physicians of the state. We know how well they have done the job. The people do too.

The Governor and the members of the Legislature want to do what the people want done. It is hard, in such a short time, to get the wishes of the people before them.

The Woman's Auxiliary has set for its task, the securing of fifty letters to the Governor and to your State Senator and Representative, asking them to **vote against the Ripper bill.** (House Bill No. 463.)

Please write yourself and get other citizens generally interested in the health of our people to write within the next forty-eight (48) hours.

Faithfully yours,
Margaret M. Martin, President.
(Mrs. W. M. Martin)
Virginia Shively Evans, Secretary.
(Mrs. R. M. Evans)

The response of the wives to this call for service was more than gratifying. Letters poured in to the Members of the Legislature from all sections of the state requesting the defeat of the Ripper Bill. So great was the influx of letters, telegrams, resolutions and petitions, that the opposition, also, believed it expedient to send "a woman's letter" to the legislators.

During the discussion on the floor of the House preceding the vote on the Ripper Bill, February 21, Mr. Daniel Boone Smith, member from Knox County, urged the passage of the Ripper Bill and read the "Virginia Claire" letter in support of his argument. Following is a copy of that letter:

Lexington, Kentucky,
February 17, 1928.

Dear Sir:

Just received a forwarded letter from the "Woman's Auxiliary of the Kentucky State Medical Society" with headquarters in the State Board of Health where the letters were printed and mailed to everybody in the State that the Society could address as "My dear Mrs. Doctor."

The society representing, of course, the State Board of Health, disguised as the "Auxiliary of the Medical Association," complains that "a strong attempt is being made to throw the State Board of Health into partisan politics," and urges each of us to write fifty letters to the representatives to create enough "pressure" to keep them from voting for House Bill No. 463.

It strikes me that the circular letters we received, and similar letters the doctors themselves received, and the called meeting at Louisville of the State Board's followers for the purpose of making a gesture of public disapproval of this Bill constitutes pretty good evidence that some others are playing politics. As a matter of fact most of us know that the State Board of Health has been playing politics for years, as for example in the races of Mr. Beckham, McDermott, Augustus E. Willson. A. O. Stanley and others, for and against, as the interests of the Board demanded. We hear quite a bit from the Board about "keeping politics out of the State Board of Health"; but personally I would prefer to hear a bit more about keeping the State Board of Health out of politics.

This may not be just the sort of letter Dr. McCormack, alias the State Board of Health, alias the Kentucky State Medical Society, alias the Woman's Auxiliary of the Kentucky State Medical Association, would prefer me to write; but it just so happens that I am quite favorable to the passage of House Bill No. 463 and I feel it my duty to inform the members why so much fungus pressure can be brought to bear upon one Bill which I feel sure a majority of the people, especially in rural districts which are suffering because of the scarcity of doctors and even the doctors themselves, would like to see made a law.

Respectfully yours,
Virginia M. Claire.

Mr. Mac Swinford, Member from Harrison County, arose and inquired, "Who is Virginia Claire?"

"She is a lady in Lexington," responded Mr. Smith.

"Well **who** is she? Do you know her?" asked Mr. Swinford.

"No, I don't know her personally," answered Mr. Smith, "but she is a lady in Lexington."

"Well, let me tell you something," said Mr. Swinford, "There is no 'Virginia Claire' in Lexington. This is a bogus letter. It is written on plain paper, wih no street address or any other means of identification. I got a copy of it, as did the other members. Some of the members wrote replies to 'Virginia Claire' in Lexington and the Lexington postmaster is still holding these letters as no one will claim them. None of the city officials, nor the county officials, the telephone nor the telegraph companies, the hotel, nor rooming house people, the storekeepers, school teachers, doctors, dentists, nurses, nor the employers in industry have been able to find 'Virginia Claire" in Lexington. However, we do know who wrote this nefarious piece of destructive propaganda. His name is neither 'Virginia' nor 'Clare' and his chief object is the destruction of the State Board of Health."

After some further debate the motion was put, the bill defeated and the "clincher motion" was applied. According to the Rules of the House, this meant that the Ripper Bill was dead for this Session of the Legislature.

"Rule 63"

"If any bill, motion or resolution, has been, by vote carried or lost and a motion is made to reconsider the vote by which the bill, motion or resolution was carried or lost, and said motion to reconsider is laid upon the table, then no further motion shall be entertained relative to the subject matter carried by said bill, unless by the unanimous consent of the house."

However, an almost identical bill was introduced in the Senate by Senator John Thurmond of Christian County, March 1. This bill (Senate Bill 493) was passed by the Senate, March 6, by a vote of 23 to 16, with the understanding that "any bill originating in the Senate and passed by the Senate must be considered by the House, providing the House has time for it."

That night, March 6, the May Day Child Health dinner, arranged by Dr. Annie Veech to inaugurate the May Day activities of the Bureau of Maternal and Child Health of the State Board of Health, was held at the Brown Hotel, Louisville, with Mrs. R. S. Witherspoon, Chairman of the Health Committee, Louisville Woman's Club, as presiding officer.

About 500 people were present, representing the churches, schools, state and civic authorities interested in child welfare; physicians, dentists, nurses, social workers, men's luncheon clubs and women's clubs.

Among the speakers were several noted health workers from New York, Boston and Washington. The program was interestingly constructive and an atmosphere of pleasurable anticipation pervaded all who hoped to share in the work of helping the children of Kentucky.

But one note of alarm was sounded. This came from Dr. Valeria Parker of Washington, who, when given an ovation just as she was about to leave for her train, said she had heard that the State Board of Health of Kentucky was about to be thrown into politics, and that she could not forego the opportunity to warn all those present that when politics came in one door of a board of health, health went out the window.

With but a momentary shudder, the program was resumed and carried through to the summary which was effectively made by Dr. A. T. McCormack. Following his speech, Dr. McCormack announced the passage of the Ripper Bill in the Senate. (Senate Bill 493.) This came as a veritable shock to all those present. Dr. McCormack warned the audience that unless prompt and efficient measures were taken, May Day Child Health Projects would be but roseate dreams of the past. That all health work in Kentucky would be woefully demoralized and these bureaus and other organizations now promoting health, gathering vital statistics and fighting disease would be bandied about as pawns—mere rewards—for the evil deeds of the henchmen of scheming, intriguing political parasites."

Instantly, the spirit of defense electrified the audience. All over the house, men and women jumped to their feet, demanding recognition from the chair for the passage of resolutions and motions for immediate action.

The guest of honor, Mrs. Henry Breckinridge of Kentucky and New York, joined in action. Here, at this meeting, consecrated to the betterment of child life in Kentucky, baptized with a fire of righteous indignation, a campaign of public protest against the deliberate destruction of the State Health work was begun in earnest.

Letters, telegrams and petitions urging the defeat of the Ripper Bill flooded the desks of the Legislators. Telephones insistently called them to explain why they supposed a vote for the Ripper Bill was in any possible way representative of the wishes of their constituents. This was followed by an urgent request to vote against the Ripper Bill. The Ripper Bill (Senate Bill 493) was read into the orders of the day in the House March 9. The second reading was Saturday, March 10. After that time, it could be brought to the floor for a vote at any time the Rules Committee saw fit, as bills do not need to be posted during the last five days of the session.

Delegations of women, representing the clubs and churches, called on the Governor and drew from him the startling statement that he was "pledged for the Ripper Bill" and that the "women don't understand politics." Delegations of men also went to the Governor and came away disheartened.

But everybody kept right on working and praying. Particularly noteworthy was the campaign of the Lexington Herald, whose editor, Mr. Desha Breckinridge, joined the fight determinedly and unreservedly. The newspapers all over the state carried a continuous barrage of startling news stories and editorials. There was plenty of material at Frankfort for startling stories, too. "Old Timers", shaking their gray heads, exclaimed again and again, "There never was anything to equal this before in Kentucky." "Such a lying, hating, plotting, desperate lobby never known in Frankfort before." "I wouldn't believe it if I were not here to see it," and other like statements.

During the last seven hectic days, delegations, interested in the welfare of the state, busy men and women from all sections, thronged the corridors and the galleries of the Capitol, interviewing their own Representatives and urging the defeat of the Ripper Bill. Here they were jostled and crowded by the chiropractors and numerous other lobbyists whom the opposition had corraled to help "get the State Board of Health" and who assumed the "privileges of the floor" until they became such a nuisance that the Speaker ordered the Sergeant-at-Arms to clear the floor.

However, "Right will prevail" and "God works in a mysterious way, His wonders to perform." The Rules Committee killed the bill March 14, 1928. Varied stories of how and why this happened permeated the atmosphere. One story was to the effect that eleven of the twenty-two members of the Rules Committee had bound them selves together with a solemn oath never to permit the Ripper Bill to appear again on the floor. These members of the Rules Committee believed that the bill would be beaten on the floor, unless several members, pledged to vote against the bill should be temporarily absent and the bill be hurriedly brought up by the enemy during their absence. Subsequent events seemed to bear out this reasoning.

Friends of the State Board of Health kept faithfully on the alert. Some of the oldest members of the House, wearied by the stress and strain of day and night sessions, would rest, fully clothed, on their beds, ready, at the telephone call of a colleague, to jump into a waiting taxi and rush to the House Chamber, should their votes be needed to "kill that Ripper."

Several of the opposition forces continued on the alert too, and vainly awaited a last minute opportunity to "put it over," that long, weary, final night of March 15, until the gavel at length descended upon adjournment.

To kill this piece of pernicious political intrigue called forth the energy and the brains of all Kentuckians truly interested in the welfare of the Commonwealth. It was a crisis and Kentuckians of every age and race, impelled by the same noble spirit of defense for the helpless babies, the overburdened mothers, the sick and diseased, rose to the emergency and stepped into action—each man, each woman to the place he best could fill, keeping faithfully at the post, never faltering, never turning back 'til victory was assured.

The clarion call of the women, so instnatly heeded, so unswervingly answered from every hill and valley and plain in the state is quite as dramatic as the description of the response of the clans in the Scottish Highlands as given by Scott in "The Lady of the Lake."

"....................he whistled shrill,
And he was answered from the hill;
Wild as the scream of the curlew,
From craig to craig the signal flew.
Instant thro' copse and heath, arose
Bonnets and spears and bended bows;
On right, on left, above, below,
Sprung up at once the lurking foe;
From shingles gray their lances start,
The bracken bush sends forth the dart,
The rushes and the willow wand
Are bristling into axe and brand,
And every tuft of broom gives life
To plaided warrior armed for strife.
That whistle manned the lonely glen
With full five hundred armed men,
As if the yawning hill to heaven
A subterranean host had given,
Watching their leader's beck and will,
All ready there they stood............"

BOOK REVIEW

FISTULA OF THE ANUS AND RECTUM. By Charles John Druk, M. D., F. A. C. S. Professor of Rectal Diseases Post Graduate Hospital and Medical School, Chicago. With 66 original illustrations. F. A. Davis Company, Publishers 1927.

In presenting this monograph to the public the author has gathered the anatomical, pathological, physiological and clinical knowledge gained through years of study of a large number of individuals. The details of this surgical procedure are given with numerous illustrations which renders the volume an invaluabe aid to the surgeon.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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Annual Meeting, Richmond, September 10, 11, 12, 13, 1928

COUNTY SOCIETY REPORTS

Grant: The meeting of the Grant County Medical Society was held February 15, 1928 at the Donald Hotel of Williamstown, Kentucky. All present enjoyed the good dinner and spent an enjoyable evening.

After dinner we met in the parlor of the hotel and the following officers were elected for the year, 1928:

C. M. Eckler, Wiliamstown, President.
J. L. Price, Sherman, Vice-President.
H. F. Mann, Crittenden, Sec'y.-Treas.
C. A. Eckler, Dry Ridge, Delegate.
Chas. D. O'Hara, Williamstown, Censor.

We had a general discussion on Disease of Childhood, in which all present took part. This proved very interesting as we have some three or four of said diseases in our county now.

The meeting was adjourned and the next one will be held on March 21, 1928.

H. F. MANN, Secretary.

Hardin: The Hardin County Medical Society met on March 8, in their new quarters in the Union National Bank Building with the following members present: J. S. Bean, President, H. R. Nusz, Cecilia; C. C. Carroll, White Mills; J. G. Hale, Glendale; C. W. Rogers, Rineyville; J. M. English, J. C. Mobley anud D. E. McClure, Elizabethtown.

There was no regular program but the meeting was devoted to the report of unusual cases occurring during the last month and the resulting discussions were interesting and instructive.

Despite the fact that the number of doctors in the county is constantly being reduced from year to year, interest in the profession does not diminish and it is unusual for a meeting day to pass without a sufficient number being present to have an interesting meeting.

The society will meet in May at Glendale on the invitation of Dr. J. G. Hale.

D. E. McCLURE, Secretary.

Franklin: The Franklin County Medical Society met in regular monthly session at the Capitol Hotel February 2, 1928 at 12:00 noon.

The newly elected president, Dr. C. E. Youmans, presided.

The following members were present: Drs. Patterson, Demaree, Roemele, C. T. Coleman, Budd, Darnell, Trvis, Ginn, Coblin, Stewart, Heilman and Minish.

Visitors from the Woodford County Society were: Drs. McCauley and Anderson.

Minutes of the previous meeting were read and approved.

Bills for flowers ordered paid.

On motion made and duly seconded a committee consisting of Drs. E. C. Roemele, C. T. Coleman, L. T. Minish were appointed by the President to prepare a suitable memorial on the death of Dr. George W. Chinn, who died on January 6. 1928.

The program for this meeting was in charge of Dr. R. B. Ginn, who presented a paper on Scarlet Fever, a most timely subject, owing to the fact that the disease is prevalent in many sections of Kentucky and especially so as a number of cases have been reported in Frankfort. Dr. Ginn was complimented on the way he handled his subject by all present as each member and guest took part in discussing the disease and especially discussing the newer methods of treatment, namely: the use of the scarlet fever antitoxin. Dr. Ginn closed the discussion by thanking the members and guests for their liberal discussion of his paper.

Dr. A. M. Lyon who recently came to Frankfort from Elliott County, and now the Superintendent of the Kentucky State Feeble Minded Institute, transferred his membership to this Society.

Dr. G. H. Heilman is to have charge of the March program.

Adjourned to the hotel dining room for lunch.

Dr. L. T. MINISH, Secretary.

Memorial to the Memory of Dr. George W. Chinn

Implanted in the soul of every true man is that sentiment which would keep alive the memory of a worthy gifted companion and friend, and perpetuate his name to the generations which are to come after us. Hence it is well to pause in our routine of pressing business to place upon record a tribute to the memory of one having lived and labored long beyond the allotted span, had travelled the rough and rugged road of life, now rests from his labors and afflictions.

Dr. George W. Chinn the oldest member of the Franklin County Medical Society and of the medical profession in this community, passed away on the 6th of January, 1928, at the age of eighty-six years. He graduated from the Medical College of Ohio, Cincinnati, in 1884. He at once became connected with the Western State Hospital at Hopkinsville, Kentucky, as First Assistant Resident Physician. This position be held for about two years. He then located at Bridgeport in this County, after several years of practice in the County he removed to Frankfort, where he practiced up to twenty-five years ago at which time he was forced to retire from active practice on account of a fall which resulted in a broken hip. Notwithstanding his inability to continue the practice of medicine, Dr. Chinn, for the past twenty-five years, kept abreast of the times and took a keen interest in every matter pertaining to the advancement of medical and surgical science.

Resolved: That our Society has lost a most lovable member and the community a most beautiful Christian character; that we extend to the two sisters of Dr. Chinn our heartfelt sympathy in the trying hours of their bereavement.

Dr. C. T. Coleman,
Dr. E. C. Roemele,
Dr. L. T. Minish,
Committee.

Franklin: The Franklin County Medical Society met in regular monthly session at the Capital Hotel March 8th, 1928, at 11:30 a. m.

The following members were present: Drs. Jackson, Coblin, Roemele, Budd, Wilson, Travis, Patterson, Ginn, Youmans, C. T. Coleman and Minish.

Dr. Youmans, the president, presided. Reading of the minutes of February's meeting were dispensed with.

Dr. G. H. Heilman who had charge of the March program was unavoidably prevented from attending.

This being the month that the National Tuberculosis Association is putting on the "Eearly Diagnosis" Campaign our program was on Tuberculosis, and Dr. F. P. Allen, Director of the Health Department of Fayette County, gave a most interesting and instructive paper on "Tuberculosis From a Standpoint of Public Heatlh", which was discussed at length by each one present. Many questions were asked Dr. Allen which he answered in closing.

A committee composed of Drs. Patterson, C. T. Coleman and Stewart, was appointed by the president to call upon our County Representative in the Legislature, Mr. R. Carey Graham, and request that he vote against the "Ripper Bill." This committee was appointed to comply with a resolution which was unanimously passed.

Dr. Jackson will have charge of the April program.

L. T. MINISH, Secretary.

Union: The Union County Medical Society met in the K. of C. Hall at Morganfield, Kentucky on Tuesday, February 28, at 8 p. m.

The following were present: Drs. G. B. Carr, D. M. Sloan, H. B. Allen, H. B. Stewart, C. B. Graves, D. C. Donan, C. P. Cottingham

The minutes of the previous meeting were read and approved.

H. B. Allen presented a case of skin eruption, which was finally thought to be a trade eczema.

D. C. Donan read his paper on "The Early Diagnosis of Tuberculosis" and gave a demonstration of the technique in making physical examination. A general discussion followed.

Usual routine business was transacted, and the society adjourned to meet again at Morganfield, Kentucky, the last Tuesday in March, with Dr. Graves, Conway, and Winston, committee on arrangements and program.

DAVID C. DONAN, Secretary.

Campbell-Kenton: The Campbell-Kenton Medical Society held its first meeting of the year at St. Elizabeth Hospital, Covington, January 3. After the usual business session, Drs. Gerding and Schwertman read papers on Pneumonia, with special reference as to typing. A liberal discussion followed. L. C. Hafer, newly elected president officiated.

The Campbell-Kenton Medical Society held its annual banquet at Woman's Club, Covington, January 12, 1928. Dr. G. A. Hendon of Louisville, was principal speaker. Other speakers were: Dr. Hafer, Dr. Bonar, Dr. Bonifield and Dr. Clark, of Falmouth. Dr. Clark was unanimously elected to honorary membership in this society. This kindly and lovable old physician responded as only he is capable of doing. The menu as usual was excellent and the attendance was large.

The Campbell-Kenton Medical Society held its bi-monthly meeting January 19, 1928 at Speers Memorial Hospital, Dayton, Dr. L. C. Hafer, presiding. Attendance fair. Dr. H. C. Caldwell discussed Gastric and Duodenal Ulcers from a surgical standpoint, while Dr. W. J. Gerding treated it from a medical point of view. Dr. Joseph Northcut also discussed the papers.

Under the new regime the society bids fair to have a successful year as the program for the new year is the best ever.

KARL ZWICK, Secretary.

Oldham: Oldham County Medical Society met in the office of Dr. Smock with the following members present, which is 100 per cent of its members: H. B. Blaydes, C. L. Hancock, J. W. Sams, R. B. Cassady, T. G. Connell and S. J. Smock. H. B. Blaydes was elected president; first vice-president, J. W. Sams; S. J. Smock, secretary; J. W. Sams, delegate to the next state meeting; alternate, R. B. Cassady.

H B. Blaydes read a paper on Prostatic Troubles, T. G. Connell read a paper on Dementia. These papers were discussed by all the members of the society.

It was decided to hold meetings quarterly. The next meeting to be held the first Thursday in May at 2 o'clock p. m. in the city hall.

S. J. SMOCK, Secretary.

BOOK REVIEWS

MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. By Charles H. May, M. D. Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; Formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia, New York.

Twelfth Edition, revised. With 374 original illustrations including 23 plates, with 73 colored figures. William Wood & Company, New York. Publishers. Price $4.00.

The eleventh edition of this manual appeared in August, 1924, and was reprinted in August, 1926; there have also been new editions of some of the foreign language editions.

In presenting the twelfth edition, the author desires to express his appreciation of the continued favor with which his work is received. Every page has been carefully examined; alterations and additions have been incorporated to improve the text wherever possible.

The volume has been kept up to date, but has not been increased in size, the original plan of presenting a book for the student and general practitioner having been adhered to.

BRAIN AND MIND. The Nervous System of Man, by R. J. A. Berry, M. D., F. A. C. S., F. R. S., Edinburg. Dean of the Faculty of Medicine and Professor of Anatomy including Histology, in the University of Melbourne; ;formerly lecturer on Anatomy in the School of Medicine of the Royal Colleges, Edinburgh, etc

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Being the Journal of the Kentucky State Medical Association
Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets.
Subscription Price, $5.00
Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., JUNE, 1928 No. 6

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Just Ready

Pelouze on Gonorrhea

Dr. Pelouze has struck out into new channels. He avoids the formal style and presents instead a simple, outspoken presentation of gonorrhea as he has met it in practice. He sweeps aside all confusion and gives a clear statement of *how* to diagnose, *how* to treat, and *how* to prevent this prevalent disease. Years of experience are summed up and presented in simple language, uncramped by any desire to conform to the demands of curricula. It is a book for the practitioner—*from title to index!*

Pathology, susceptibility, mode of infection, incubation, symptoms and causes of symptoms, clinical course and complications—these are first given. Then Dr. Pelouze goes into a very definite discussion of treatment, hygiene, oral medication, vaccines, prostatic massage, evidences of cure and many other important phases of the subject which are of immediate interest to the general practitioner.

Gonococcal Urethritis in the Male. For the Practitioner. By P. S. PELOUZE, M. D., Associate in Urology and Assistant Genito-Urinary Surgeon, University of Pennsylvania. Octavo of 351 pages, illustrated. Cloth, $5.00 net.

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., JUNE 1928 No. 6

EDITORIAL

THE ANNUAL MEETING

The Madison County Medical Society has designated the week beginning September 10th as the time for the annual meeting of the Kentucky State Medical Association at Richmond. Dr. Robert Sory, Director of the Irvine-McDowell Trachoma Hospital, has been made Chairman of the Committee on Arrangements.

Through the cooperation of the Eastern State Normal and all the citizens of Richmond, they are prepared to take care of two thousand doctors.

Richmond is in the center of the state and is easily accessible by train and automobile. It has a splendid golf course and a tournament has been arranged for the members, and also one for the Ladies' Auxiliary. Crab Orchard Springs Hotel, which is a very short distance from Richmond, will offer the members reduced rates for the week-end.

Berea College and the lovely Boone Tavern have issued an invitation for every doctor to visit this wonderful institution of learning and enjoy the hospitality of this mountain College and Inn.

Dr. W. Barnett Owen, Chairman of the Program Committee, with Dr. John H. Blackburn, President-Elect, and Dr. A. T. McCormack have promised a splendid program that will fit the needs of the practitioner as well as the specialist.

The next issue of the Journal will contain more detailed information.

A SCHOLARSHIP

Announcement has been made that the Maltbie Chemical Company of Newark, New Jersey, has contributed a grant for a research fellowship for the coming year to the Department of Chemistry of Princeton University.

The research work to be done under this fellowship will be fundamental in character and will cover certain phases of the chemistry of creosote and creosote compounds.

The establishment of this research fellowship is in line with the policy of the Maltbie Chemical Company to extend its research activities and to contribute to a study of the chemistry of important drugs.

AMERICAN ASSOCIATION FOR STUDY OF GOITER

The American Association for the Study of Goiter, consisting of Internists, Pathologists, Radiologists, etc., as well as Surgeons, will hold their Fifth Annual Conference on Goiter, in Denver, Colorado, June 18th, 19th and 20th.

Several men from foreign countries have signified their intention of attending. Porfessor Breitner of the Von Eiselberg Clinic, Vienna and Professor Albert Kocher of Berne, Switzerland, have accepted places upon the programme.

Addresses and discussions on Prophylaxis, Medical Treatment, Endemic Goiter and Cretinism from the Public Health Standpoint, are on the programme for the first afternoon.

Pathology, various phases of Surgical Treatment, etc., will be considered the last two afternoons.

All members of State Medical Societies are invited to attend.

Dr. Gordon S. Fahrni of Winnipeg, Canada, is the President and Dr. Kerwin Kinard of Kansas City is Vice President.

DR. PFINGST RESIGNS

The resignation of Dr. Adolph O. Pfingst as Professor of Ophthalmology, from the University of Louisville and as Director of the Eye Clinic at the Louisville City Hospital, is noted with much regret. Dr. Pfingst has been associated with the Medical Department in the capacity of teacher since 1896. His first official connection was that of conductor of the bacteriological laboratory in the Louisville Medical College. In 1898 he succeeded Dr. Sam Cochran as Professor of Physiology in this institution. He held this chair for eight years and in addition conducted the laboratory in Histology. In 1905 he was made Professor of Ophthalmology in the Kentucky University, and after the medical colleges were consolidated, shared this chair with the late Dr. J. M. Ray.

One of the outstanding characteristics of Dr. Pfingst, while Professor of Physiology, was his ability to quiz in a rapid fire manner, which was made possible by his personal acquaintance with each student of the class. This human quality made him the ideal teacher and gave him the large acquaintance with the members of our profession throughout the South. Through his untiring efforts Dr. Pfingst has developed the Eye Clinic at the City Hospital from a few patients to a very large clinic of almost unwieldly number. His knowledge, character and personality were the elements of his success both in the profession and in the class room.

Dr. Pfingst resigned from the University to devote all of his time to his private practice. In his resignation the University loses a capable, conscientious and untiring worker and his associates in the department of Ophthalmology a leader under whom the work in this department has always been most congenial.

SCHOOL FOR LABORATORY TECHNICIANS

The pupils of the School of Laboratory Technicians, conducted under the auspices of the School of Public Health, University of Louisville, and the State Board of Health, graduated May fifteenth. All graduates of this class have positions waiting for them in the following hospitals and clinics:

Memorial Hospital, Monongahela, Pa.
Dr. B. K. Menefee's Laboratory, Covington, Ky.
Mercy Hospital, Prescott, Arizona.
Sunnyside Sanatorium, Oaklandon, Ind.
Milford Emergency Hospital, Milford, Del.
Jewish Hospital, Cincinnati, Ohio.
Terre Haute Laboratories, Terre Haute, Ind.
Dr. R. W. Van Deventer's laboratory, Wellington, Kansas.
Pawhuska Municipal Hospital, Pawhuska, Okla.
Massilon State Hospital, Massilon, Ohio.
Metropolitan Hospital, Welfare Island, New York City, N. Y.
St. Joseph's Infirmary, Louisville ,Ky.
Southside Hospital, Bay Shore, Long Island, N. Y.
Henderson County Health Department, Henderson, Ky.
Newton Hospital, Newton Lower Falls, Mass.
Philipsburg State Hospital, Philipsburg, Pa.
Ranger Clinic, Ranger, Texas.
Colwick Clinic, Durant, Okla.
Deaconess Hospital, Louisville, Ky.
University Hospital, Enid, Okla.
Babies' Hospital, Newark, N. J.
Lynch Hospital, Lynch, Ky.
Rife-Ferguson Clinic, Kenova, W. Va.
Bridgeport Hospital, Bridgeport, Conn.
Dr. E. L. Ellis' Laboratory, Maryville, Tenn.
Southside Hospital, Bayshore, Long Island, N. Y.
Dr. W. L. Laws' Laboratory, Montgomery, Ala.
Blackwell Sanitarium, Gorman, Texas.
Employees' Hospital, Fairfield, Alabama.
Central State Hospital, Petersburg, Va.

Through the courtesy of Dr. A. D. Willmoth we were able to add a very thorough course in PhysicalTherapy. The Victor X-Ray Corporation of Chicago, who for the past several years have carried a full page advertisement in the Kentucky Medical Journal, sent two of their most expert roentgenologists and over three hundred plates so that the students could have ample experience in taking pictures.

The Public Service Laboratories at Lexington supplied vast quantities of four plus Wassermann serum so that the class could have ample material to work with in making the Wassermann test. Dr. C. C. Young of the Michigan laoratory supplied a great many cultures, and Dr. Kahn, also in Michigan, supplied the antigen for the Kahn test.

Much praise should be given to Miss Frances L. Wales, Mr. E. H. Sandlin, Dr. L. H. South and the Dean, Dr. A. T. McCormack, in giving the Kentucky girls and boys this course and securing such good positions for them. Graduates of this School are now occupying prominent positions in thirty-two states of the Union, Hawaiian Islands and Shanghai, China.

Dr. A. T. McCormack outlines the course of instruction and through him the school is able to secure over five hundred specimens of malaria from the Panama Canal Zone and all the material that is received in the labortory of the State Board of Health.

In recognition of the spledid work that Mr. E. H. Sandlin has done in this School, the Rockefeller Foundation has given him a scholarship whereby he will be able to visit and study a number of the large laboratories in the United States.

THE POST-GRADUATE COURSE

The Kentucky State Medical Association at its last session determined upon an innovation for its members in which many of them are showing great interest. Under the directorship of Doctor Philip F. Barbour a post-graduate course of instruction will be held in Louisville, beginning July 9th, and lasting two weeks. Charts of the program for both weeks are being printed herewith. These lectures and demonstrations will, we feel sure, prove most interesting and helpful to those of our members who can arrange to attend. These courses are being modeled after others which have proved most successful in other states.

One very attractive feature will be an afternoon at the Waverly Hills Tuberculosis Sanatorium. Doctor O. O. Miller will serve dinner to the physicians attending the course and will then have a clinic at which will be demonstrated practically every type and form of tuberculosis; the modern methods of diagnosis and the interpretation of X-ray findings. The visiting doctors will be taken out to the sanatorium and returned to the city by automobiles furnished by the Tuberculosis Association.

Doctor Barbour has already received many letters from our members who are interested in this course and will be glad to answer any inquiry directed to him. He will also be glad to arrange for special lectures to fill the needs of any of our members who want brushing up on any particular subject.

ROSTER OF THE POST GRADUATE COURSE

First Week, July 9--14

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 to 9	Surgical Clinics in Various Hospitals					
9 to 11	Laboratory	Physical Diagnosis	Laboratory	Physical Diagnosis	Laboratory	Physical Diagnosis
11 to 12	Dry Clinics	Dry Clinics	Dry Clinics	Dry Clinics	Dry Clinics	Dry Clinics
12 to 1	Goitre	Obstetrics	X-Ray Reading	Obstetrics	Psychanalysis	Obstetrics
2 to 3	Post-partum Clinic	Medical Clinic	Pre-natal Clinics	Eye Clinic	Pre-natal Clinic	
3 to 4		Orthopedic Clinic		Skin and Syphilis Clinic		
4 to 5	Infant Feeding	Infant Feeding	Fractures	Pedeatric Clinic	Fractures	

Second Week, July 16--21

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8 to 9	Surgical Clinics in Various Hospitals					
9 to 11	Laboratory	Physical Diagnosis	Laboratory	Physical Diagnosis	Laboratory	Physical Diagnosis
11 to 12	Dry Clinics	Dry Clinics	Trip to Waverly Hills Sanatarium Dinner and Demonstrations	Dry Clinics	Dry Clinics	Dry Clinics
12 to 1	Surgical Clinic	Gynecological Clinic		Surgical Clinic	Gynecological Clinic	Public Health
2 to 3	Lunch at Children's Free Hospital and Clinic	Medical Clinic		Eye Clinic	Ear, Nose Throat Clinic	
3 to 4		Orthopedic Clinic		Rectal Clinic	Nervous Clinic	
4 to 5	Periodic Routine Examination	Periodic Routine Examination		Pediatric Clinic	Diabetes	

ORIGINAL ARTICLES

MILK AND ITS RELATION TO PUBLIC HEALTH.*

By William V. Neel, Henderson.

During the past few years increasing attention has been given to milk in its relation to public health. This is especially true in the United States, where the more progressive health authorities of many of our cities and States have been instrumental in markedly improving their milk supplies.

The question of sanitary milk is to the American people especially pertinent. Milk is perhaps used to a greater extent in this than in any other country. It holds a peculiar place in the nation's dietary because of its varied applicability. Containing as it does all the essentials of a perfect ration, proteids, carbohydrates, fats, inorganic salts, and water, it is capable of almost universal use. Because of this, and, in addition, its facility of ingestion and comparative ease of digestion, it constitutes an important food for the sick and convalescent.

Of even greater importance is the use of cow's milk as a substitute for mother's milk in infant feeding. It will be perceived that those most dependent upon this food—the sick and convalescent, infants and children—constitute that part of the community suffering the greatest injury from the use of a food impaired in its nutritive content. This is due to the fact that they are the least able to resist the harmful effects of foods contaminated by toxins or pathogenic micro-organisms. While improved conditions of living have contributed to a steady decrease of the general mortality in civilized countries, this unfortunately does not apply to the infant population under one year of age. It is recognized that gastro-intestinal disease is the largest single factor determining infant mortality, a condition in great measure due to improper methods of feeding. This enormous loss of potential wealth is of grave concern to the State, county and city health administrations and worthy of most careful consideration. It is especially for these reasons that the question of sanitary milk and its relation to public health challenges our best endeavors.

Milk holds a peculiar position among foodstuffs in that it is an excellent medium for the growth of many micro-organisms, both the ordinary saprophytic varieties and those pathogenic to man. These factors often produce in market milk an enormous bacterial content. Were milk transparent, this luxuriant growth would be evident to the naked eye, but because of its opacity such contamination occurs unnoticed. Fortunately, most of the organisms are saprophytes, but there are good reasons to believe that they may elaborate toxins, rendering milk dangerous as a food.

It is evident from a broad view of the subject, that a pure and wholesome milk supply is possible. The three cardinal requirements, Cleanliness, cold and speedy transmission from the cow to the consumer must be observed, and the cow herself must be free from disease. For this observance, intelligence and care on the part of the dairyman and milk dealer are absolutely essential.

Of all foodstuffs, milk is the most difficult to preserve pure and handle with success. It requires not only intelligence, but a high degree of technical training, as well as incessant vigilance, to produce a clean and safe milk. Many believe that this end may be accomplished by official supervision and a good system of inspection. However, we can scarcely conceive of any system of surveillance of the milk supply that will prevent occasional contamination. In fact, the highest grade of certified milk has at times been accused of causing outbreaks of disease. Such lapses are infrequent and the danger slight. These facts are stated not as an argument that certified milk should be pasteurized, but simply to show the difficulties of obtaining a safe raw product.

The important subject of pasteurization of milk has been carefully studied by Dr. Milton J. Rosenau, who points its advantages and discusses its inconveniences. He recommends 60 degrees C. for twenty minutes as the best temperature to use in pasteurizing milk, as this degree of heat is sufficient to destroy the pathogenic microorganisms without devitalizing the milk itself. He states, that while pasteurization is not the ideal to be sought, practically, it is forced upon us by present conditions. It prevents much sickness and saves many lives—a fact which justifies its use under proper conditions. He believes that there is no relation between the heating of milk and infantile scurvy, and shows that this disease may result from qualities in the milk, other than the result in heating.

Harm has been done by the misleading use of the term "pasteurized milk," which has popularly been construed to mean superior quality of milk, in the same sense that antiseptic surgery is a great advance in the old school methods. "Pasteurized milk" really means heated milk, and is not necessarily synonymous with "clean milk", "good milk" or "pure milk." The particular object of the heating is to destroy the harmful bacteria. In order to correct this misconception concerning "pasteurized" milk, it would be better to discontinue the use of the term and use in its place "heated milk," stating the degree of heat and the time of exposure on each bottle, as well as the date on which the milk was heated.

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*Read before the Green River Valley Public Health Conference at Dixon.

Pasteurized milk must be handled at least as carefully as raw milk, if not more so. Pathogenic bacteria grows more rapidly in heated milk than in raw milk. The "germicidal" properties of the milk are destroyed by high heating, and finally the surviving bacteria do not have so hard a struggle for existence in heated milk. It must not be forgotten that pasteurization kills only the major portion of the nonspore-bearing bacteria, and that a large number of micro-organisms remain and, if permitted to grow and multiply, they may occasionally produce undesirable qualities or perhaps poisonous properties in the milk.

It must be quite evident to anyone who gives the matter thoughtful attention that the heating of milk, like the use of antiseptics, is an expedient rather than an ideal procedure. "Antisepsis" was a great improvement in surgery, but "asepsis" or the absence of germs, is the ideal. In the same sense, heating improves bacteria-laden and dirty milk, but clean milk is the end we must seek. "Pure milk" is better than purified milk."

Preventive measures are better than corrective ones. Pasteurization cannot atone for filth. Milk should be produced under clean conditions and be kept clean and then it would not have to be purified. But we must guard against enemies as long as they exist. We would all like to do away with the necessity for armies and navies, but present conditions demand their maintenance. This is true of harmful bacteria in milk; so long as the average market milk is apt to contain these insidious foes, the only protection we have is to destroy them with heat.

The average commercial milk of many of our cities is not a safe food. The principle reason for this is the ignorance and indifference of those engaged in the dairy business, filthy barns, unclean and unhealthy cows, improper care of containers, insufficient cooling of the milk, long transportation, unnecessary and frequent handling, imperfect cleaning and lack of sterilization of the bottles, and the frequent association with contagious and infectious diseases.

The average city market milk that has already deterioated in quality cannot be revivified. No known process will make bad milk good milk; but further fermentation and putrefaction in the milk can be stopped, and pathogenic organisms killed, by heating it to 60. C. for twenty minutes. Bad milk, whether heated or unheated, is unfit as a food, but if we must depend upon old dirty and uncared for milk it would be much better, especially in the summer months, to practice pasteurization.

The quantity of clean milk in any community is but a drop in the bucket, and until we can assure a good quality of milk the only protection we have is the expedient of heating it. What we want is good, fresh milk that needs no heating. At present it is exceedingly difficult to obtain such milk and anyone who investigates the matter carefully will soon convince himself that it will be many years before this is possible and only after a revolution of the milk industry. In the meantime we must protect ourselves.

Physicians who have had a large experience in the care of feeding of infants have a prejudice against the use of heated milk for prolonged periods. While it is admitted that the use of heated milk greatly diminishes the amount and seriousness of infantile diarrhoeas it has been stated that while the children first do well they may later become flabby and anemic and the subjects of scurvy.

On the other hand the testimony of a large number of physicians is available to the effect that the use of pasteurized milk produces no harmful effects that may be attributed to the heating. Whether it does, or whether it does not, after all is said and done, it would seem that those who have to choose between the use of milk of an unknown quality, with its probable serious consequences, and the remote possibility of scurvy as a result of pasteurization, should not hesitate long in the choice. The proper treatment of infantile scurvy gives almost miraculous results. This may be simply brought about by the use of fruit juices (orange, grape or pineapple), beef juice, egg albumen, or puree of potato, according to the child's digestive system.

In the past several years I have made a careful compilation from the literature of the results of rearing children upon pasteurized milk, and find hundreds of instances recorded, to the effect that children flourish well upon heated milk and without the production of scurvy.

Milk from the time that it leaves the cow's udder, receives from its surroundings bacteria of various kinds. Certain of these organisms come from the udder of the cow and the dust and dirt of the barn, and are possibly in most cases harmless; others come from the hands of the milker, and those handling the milk, and from the pails and cans used for milking, storage and transportation. During the last twenty-five years there has been piling up a mass of evidence which would seem to show that milk may receive from man the specific microorganisms of certain contagious and infectious diseases, and that these organisms may retain their virulence for some time and produce the disease in susceptible individuals drinking the raw milk. Many epidemics have supposedly been spread in this manner, such as typhoid fever, scarlet fever, diphtheria and dysentery.

Milk epidemics have characteristics more or less peculiar to themselves and usually show the following features: The onset is usually sudden and may aptly be termed explosive. This is due to the fact that a certain can or lot of milk receives an amount of the infected material from contact with an infectious person, premises, or water. This milk may be delivered to the consumer by itself, in which case the number of persons exposed to the infection is small, or again, it may be mixed in a dairy with that of many other cans, and thus a large amount of more dilute infectious material be delivered to the community. If kept cool, the milk may remain thus dilute as regards the pathogenic organism and the disease may crop out among the consumers only in the most susceptible or in persons drinking a comparatively large amount. But if the milk becomes warm because of lack of care or long transit and the contained organism is such that it will proliferate in milk, each quart delivered to the consumer may be more infectious than the original can. The initial explosion may therefore consist of but a few cases if the amount of infected milk is small or if very dilute; or of many if the amount of infected milk is large or the number of organisms great. If the milk is infected at one milking, the outbreak will rapidly subside and, aside from secondary cases spread by contact or other means, no new ones will appear. However, if the milk is infected day by day, the outbreak continues; and in contagious diseases, after the lapse of the period of incubation from the initial outbreak, secondary cases due to contact are apt to appear and grow more numerous, so that the picture presented of a typical milk epidemic may become less clear. A milk epidemic is therefore most typical in its onset, although under efficient systems of notification and quarantine secondary contact cases may be largely prevented and it may then maintain its characteristic throughout.

Diseases carried by milk can occur only by users of the infectious milk. Milk routes may therefore at times be considered thoroughfares of infection. Milk epidemics necessarily follow the milkmen, and often his route can be plotted by the incidence of the disease. The outbreak may be limited to a certain section of the city if the route is small and circumscribed in extent. If the dairy is a large one, delivering to all parts of the city, the cases may be widely separated and much scattered, having nothing in common but the milk supply. The children may go to different schools, the families be of varied social status. These points will usually eliminate schools and contact as sources.

At times where the area covered by the milkman is circumscribed, occasional isolated cases will be found at a distance, and upon careful investigation it will be found that they had friends or relatives on the involved route and used the suspected milk while on a visit.

Many dairy employees take no precautions to keep the hands clean, and in fact the milker who washes his hands before milking is the exception and not the rule. He may be a typhoid carrier, he may be convalescing from scarlet fever, or he may have diphtheria or a septic sore throat, or possibly he may have tuberculosis, and with every act of sneezing and coughing sprays tubercle bacilli or diphtheria bacilli with particles of sputum.

The stable dust may contain organisms eliminated by those working in it, and as some of this dust and other stable refuse adhering to the flanks, buttocks, and udder of the cows and floating in the air find its way into the milk thereby infecting it.

The milk pail may have been washed and taken care of by some person or member of the family suffering with a contagious or infectious disease and in the handling have received its quota of typhoid or other bacilli which thus finds their way into the milk.

The water supply of the farm or dairy may be at fault. Farms are often unfortunate in the location of their wells, which very frequently become polluted from privy vaults or pits nearby. Pails washed in polluted water, if not afterwards scalded, may harbor the infected material and more so if some of the last rinsing water still remains in them. The possibility of this infected water being added to the milk may be considered and has played an important part in some epidemics.

If milk cooler is not properly taken care of infectious material may reach the milk through it. Likewise the cans.

In many distributing dairies the milk comes in by train in cans, and before the contents are poured together in the mixer each can of milk must be tasted to ascertain whether or not it is sour. One man usually does the tasting. It may be done in a manner free from criticism or the taster may tip each can before it is lifted from the wagon and, removing the top, place his mouth to the can and taste the milk. When milk is so tasted in this manner it has been the custom to draw into the mouth a sufficient amount and then spit it upon the ground. One taster has been mentioned who was so economical that he returned the tasted milk to the can. Another method of tasting that has been employed is to use a dipper, inserting it into one can after another, and of course between cans into the mouth of the taster. Other methods entirely free from criticism are commonly used by careful dairies. I only mention this to explain what the consumers of some grades of raw milk are up against.

It is at present the custom to deliver milk to the consumer in bottles. This is especially so in cities. It can be seen how this practise properly operated may be ideal. Clean milk in sterile, well-capped bottles, handled and delivered by clean men, free from disease is a condition much to be desired. However, bottles left at houses where there are cases of scarlet fever, typhoid, or diphtheria, if refilled without being properly sterilized are undoubtedly a source of much danger. Many cities use paper bottles where there is a known case of any contagious or infectious disease, thereby safeguarding the consumers.

I am not unmindful of the fact that volumes have been written and may yet be written upon milk and its relation to public health. With this thought in mind and not wishing to consume more of your time I will close trusting that the day is not far distant when by rigid inspection and regulation of the production, handling and sale of milk, this, the most important of all foodstuffs, may be rendered universally safe for human consumption.

REFERENCES

U. S. Hygiene Laboratory Bulletin No. 56.

Mortality of Arteriosclerosis.—Hesse analyzes 9,149 necropsies done during an eight-year period—between 1905 and 1912—with reference to the mortality of arteriosclerosis. There were 402 deaths from arteriosclerosis, the greatest number in any one year being seventy-seven; the lowest, thirty-seven. In the same period, there were 1,656 deaths from tuberculosis and 1,125 deaths from cancer. Generalized arteriosclerosis and arteriosclerosis of the brain occurred most often, ninety-six and ninety-eight times, respectively, in a group of 256 cases analyzed with reference to localization. The renal vessels were involved thirty-nine times; the heart, twenty-three times.

WHAT A WHOLE TIME HEALTH DEPARTMENT MEANS TO A COMMUNITY.*

By R. E. Smith, Henderson.

It is sometimes a difficult matter to know what to say when you are asked to speak before a body of this kind, for there are so many varied factors involved in trying to hold the interest of an audience, that a speaker is often at loss to know how he can best approach a subject, for if the attention can once be had during the introduction, as a rule it is an easy mater to hold it to the end.

With this audience, however, I feel that I have not this difficulty confronting me, for you are here for a definite purpose and your very presence manifests the realization of your responsibility to this community and you already appreciate the value of a Whole Time Health Department.

I do not think that those that helped to institute a Whole Time Helath Department and made it a possibility in this County, in any way realize that this step meant to the County and to the community. Before the Whole Time Health Department was established in Webster County, the children in Kentucky and some of the people in Western Kentucky knew that such a place as Webster county existed, and knew that Dixon was the county seat, not many, but suddenly Webster County became a community known to the world, without Webster County being conscious or realizing the tremendous step that the community took when this health unit was a reality.

As a result of this important step Webster County was marked on the chart of the United States Public Health Service, on the maps in the Rockefeller Foundation and gentlemen, today this County is known as one of the progressive counties of the world. You stepped out of a state and became a part of a world movement. The county is now classed as above the average, a community which has come to realize what the great fundamental principles of health and prosperity are based on. This community has kept in step with the progress of the world around us. It has shown that it was not satisfied with the methods that our forefathers used. It has shown the spirit of progress and also has demonstrated its sense of responsibility to its children in a way which cannot be complimented too highly.

Self preservation is the first law of nature. A locality where a County Board of Health has been established, is a locality which has taken the true teachings of Christianity and has applied them as the great Master taught as He worked along the Lake of Gallilee. We have not only protected ourselves but we are giving to our children the benefits which we have derived by experience, and by the great scientific discoveries that have been made in the last twenty years, and being conscious of the fact that these benefits would be indirectly of value to the adult community but of an inestimable value directly to the children and to the youth which is the greatest asset that any community of any commonwealth can boast of.

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*Read before the Green River Valley Public Health Conference at Dixon.

A community which has a Health Unit is building for future generations. There is a spirit of unselfishness and there is a grandeur in this attitude of mind which words fail to describe. It is a living monument of self sacrifice and the manifestation of the highest ideals that can exist in any people.

Kentucky has traditions and a history of which we are not ashamed. This Nation only had one Lincoln and the "rail-splitter" has left an example of service. Nor must we forget that very likely the greatest military genius the world has ever produced, spent his boyhood in Kentucky. We have no character in American history and few, if any, in the history of other nations, of a man whose ideals of duty and of service to mankind, to his soldiers and to the Commonwealth and to the great principles of Christian religion, today stands out as a living monument of what appreciation of our duty to our fellowmen can do. I refer to General Stonewall Jackson.

Any community that is willing to deprive itself or even make the small sacrifice which is necessary for a Health Unit is a community which in the truest sense of the word is building sure foundations for prosperity and for happiness, not only for the present but for future generations to come.

It is an epoch in the history of any community when it declares war against disease and when a community undertakes to bring up its children in an environment and under circumstances which are the most favorable to produce a race, sound in body and in mind.

With these two assets, no one can calculate what that individual can accomplish in after life. Allow me to go into the more specific details and take up the subject from a medical and social viewpoint.

Sanitation and prevention has today become a separate and distinct branch of medicine. The County Health Unit has to do principally with keeping the community well. This means preventing diseases which are contagious or communicable from inflicting their ravages upon the community at large. If we take for instance the medical aspect of prevention we will very quickly come to realize the fact that many of the diseases which we treat in adult life would never have occurred if proper hygienic methods had been used in the homes and in the communities, or if the child had been protected against contagious diseases which we have felt for so long were necessary and inevitable.

We have all heard that the best thing was to let a child have the "measles" to let a child have the "whooping cough" and the "chicken pox." I have had people to tell me they would rather their children would have them before they started in school. This is a fallicy and a very dangerous attitude of mind for the public to maintain. No disease strengthens an individual. No disease gives an individual an immunity against another disease. All diseases cause damage, direct or indirect, to the human body.

We are very careful with our new automobiles not to run them over twenty-five miles an hour for the first five hundred miles. Why should we be so careful with an engine that is made of metal to "break them in," and to be so reckless with the human mechanism in allowing it to receive all the jolts, all the strains, and whatever else may happen to the mechanism and the tissues of the body which are very susceptible to changes and to damage. It is not logical and sometimes we feel that to be illogical is a normal characteristic of the human mind.

Have we ever heard this phrase: "Let them sow their wild oats, they are young." As if the fact that an individual because he is immature, gives him an immunity against the damage that follows disease. I know that there are some that are listening to me who will say that the county does not need to spend this money. "We can pay the physician fifty dollars a month who is practicing and who has had a great deal of experience, and he will do this work a great deal better than a specialist in this line." Let me correct this mistaken idea.

In the first place, if the physician is capable of doing this work, he is so busy with his practice that he cannot give his time to look after the sanitation and the preventive methods necessary to cope with an epidemic. Second, it has only been very recently that we have had special departments in our medical schools for training men in this work, because we found that the average physician had to be specially trained for what we call "epidemiology."

May I use an instance which occurred about a month ago? A child was brought to my office who had not eaten anything for three days and had been sick for six days. I examined the child and found the throat full of membrane, both tonsils were covered and the membrane extended down the throat as far as I could see. I took a smear, made a culture from the throat and it was examined at the laboratory of the County Board of Health and found that this child had diphtheria, which I had suspected when I examined the child's throat. I immediately notified the Health Officer; I gave the child antitoxin; the Health Officer went to the home with me and we found out who the children were who had been in contact with this patient; he went to the school and had all these children that were contacts returned to their homes and quarantined.

And this was not all that was done. All these children were given the Shick's test to see if they were susceptible to diphtheria. Those children were watched by the health nurse and health officer. There were twenty-seven children exposed, directly or indirectly, to this child. Those that were in the family and directly exposed were given the immunizing dose of diphtheria antitoxin.

No other cases developed but there was no practicing physician who could have stopped his regular practice and given the time that was necessary to do this work. He did it in far less time than the Part Time Health Officer could have done it, because the Health Department is well organized and well equipped and has everything ready to act immediately in an emergency of this nature.

Some will say: "Well, that happens every once in a while." Let me correct this delusion. This is a weekly occurence and I have known weeks in Henderson in which it was a daily occurence. Another thing that we have sometimes overlooked and that is, the enforcement of these laws of quarantine is a difficult problem and unless a community knows that a Health Department is going to enforce them and has the means by which they may be supervised to do so, the public will not obey these restrictions and will violate them to their own detriment and to the detriment of others.

This gives rise to another question that I am sorry to say exists in the minds of many of the physicians, and that is, some physicians fear that the Health Department will diminish their practice. I wish to state without the slightest fear of contradicion, that there is not one word of truth in a statement of this kind. The Health Department saves the physician from making unnecessary calls and most frequently calls for which he is never remunerated in his practice. The Health Department has nothing to do with the treatment of the patient. He merely takes the burden from the physician of preventing others from contracting the disease, and even if it should diminish the practice of the physician, granting that it does for the sake of argument, is it not just and right that we, the medical profession, should strive in every possible way and by every means available to combat disease and to prevent it.

For centuries the medical profession has been aware of the fact that many of the diseases which we treat run their normal course and the most that the physician can do is to prevent complications, relieve some of the suffering and strengthen the patient so that they may overcome the disease successfully.

In the last twenty-five years due to the discoveries made in medicine and science, we have been able to stamp out yellow fever, smallpox, typhus fever, bubonic plague, diphtheria, scarlet fever, whooping cough, dengue, sleeping sickness, cholera, dysentery, cerebrospinal meningitis and even to a large extent keep in check the dreaded infantile paralysis. There are other diseases that might be mentioned which are common to the tropics and then the "social scourge" venereal diseases. Wherever the proper means have been employed, either in sanitation, immunization or of prophylaxis, these diseases have been held in check.

Smallpox has destroyed its millions, typhoid fever likewise; typhus fever and cholera have had a like history. Syphilis has destroyed empires and now the means by which these fearful scourges can be held in check is common property of the medical profession, and is it not just that the medical profession should urge the public to avail themselves of the means that prevent diseases, which not only destroys life but leaves the individuals who have had them, deformed, incapacitated or unable to do the work that it is their duty to do as a member of society, to say nothing of the hundreds of thousands which today have their eyesight because of the means employed to protect the innocent infant from contracting ophthalmia neonatrum at the time of birth from an infected mother.

What is the medical profession for? Some will say, 'To cure the sick." This answer is partly correct but with the knowledge of the last twenty-five years, medicine has changed its attitude toward disease, therefore the medical profession must change its attitude. We must prevent disease whenever possible as well as treat diseases whenever it appears in individuals.

This may be interesting to a few but I am going to touch on another phase of the subject which will be very well appreciated by all, and that is, the financial side. What does it mean to a community in dollars and cents? Four separate times we tried in Henderson County to get a Whole Time Health Department. The opposition was formidable, and I am ashamed to say it. nevertheless in justice to the laymen, our greatest opposition was not met from the public but from some in the medical profession itself.

About four years ago I appeared before the Fiscal Court in behalf of a movement to try to get the cows tested for tuberculosis. I spoke for five minutes; in two minutes more the Fiscal Court had appropriated the amount necessary to have this work done. That was to prevent anyone who was selling milk from having any loss from a cow that might have tuberculosis. (Say the cow was worth $50.00 or $100.00.) What about our children who might contract measles, whooping cough, diphtheria or scarlet fever? some die; the majority get well, but these diseases leave the child with a lowered vitality and with a damaged system that in many instances, later manifests diseases which eventually shorten their lives and in many cases impair their usefulness and prevents the individual from accomplishing as much and from making as much money as he would if he had a sound constitution.

This instance in which cows were recognized as of more value than the human being is one that can be repeated times without number throughout the United States. Our communities and our State and other states almost have delirium tremens when the educational system of our towns, or counties, or State mention the fact that we need to get a little more from public taxation so that we may have better school houses, and that we may give our children better facilities for education. We immediately see a bankrupt city or county or the necessity of paying interest on those bonds for the next two hundred years, but it is remarkable how you can go around and approach an individual for funds for a political campaign, and he will shell out anywhere from ten to twenty times as much as the small increase in taxation would be for the additional amount requested for education.

We have the brains necessary in the State, we have the physical and mental ability needed for making our public school system equal to any in the country, but the only thing we lack is to rouse the public to their sense of responsibility and the great need that exists. Knowledge is wealth, but what is knowledge when we have not a healthy community made up of men and women with strong bodies and healthy minds?

Some may say: "that we have gotten along all right thus far and we can keep on." I ask the question: "have we gotten along all right and can we keep on in the way we are going?" Do large enterprises locate in communities which are not healthy, which have not the proper supervision for maintaining health, which are not law abiding and which do not believe in progress?

Communities without churches never thrive and eventually die out. The community in the future which does not have a Whole Time Health Department and which does not realize the necessity for maintaining a high standard of efficiency of work by prevention of disease, is a community which will not keep her children, and the best elements in the community will leave and go to larger and more enlightened centers.

In talking to two young men not long ago I asked them why they had not remained at home and tried to develop their home towns. They both came from two small towns in Western Kentucky. The answer that both of them gave was that "the place is dead and there is no opportunity of development." That is a serious accusation against a community Knowing the two towns, I agreed with the diagnosis and I was perfectly well aware of the fact that those two young men had "judged wisely and well." They wanted to be somewhere where they could expand and develop and where they would have the opportunity to make a living and to succeed in life, where their ideals would have room enough to grow and where they could feel that their labor brought forth fruits that their efforts entitled them to.

Western Kentucky needs merely the opportunity to develop. Show the State and the rest of the counties that we are determined to keep pace with the discoveries and the advancements that are being made use of in other sections of our country and in far less time than we think we will have enterprises establishing themselves in this part of the State and we will have wealth placed at our doors that we never dreamed of.

We must not for one moment think or feel that someone is going to come to our section of the State and give us three or four million dollars to build new roads, to build new school houses, or to maintain our Public Health Department. That has never been done anywhere in the world and I can assure you that they are not going to do it in Western Kentucky. A community, a town, a county or a State gets what they want and what they deserve.

Now if the counties of Western Kentucky are not awake enough to realize the necessity of a Whole Time Health Department we have no one to thank but ourselves. We need not worry, wring our hands, criticise other parts of the state and deplore our hard lot for the difficult circumstances and conditions under which we exist, for the only sympathy we will get will be the enumeration and the constant repetition from other parts of the state and from other states around us, of our backwardness, of our inertia and of our unpardonable ignorance.

The State and the Rockefeller Foundation helps in defraying the expense, and to me the thing that is hard to explain is how we can refuse to accept the offer made us by the State Board of Health and the Rockefeller Foundation to aid us in maintaining a Health Unit.

I believe that the people in this portion of the State are more than willing and ready to co-operate in any movement that will be for the improvement of our health condition and that will insure a healthier race of children and that will hold out to them advantages which our generation was deprived of. I am quite sure that a gathering of this kind is a manifestation of their willingness and of their determination to do whatever is in their power to aid the State Board of Health in trying to establish a Health Unit in all the counties in our State. Of course it will place an extra expense on the county but there is no investment that a county can make that will return as high interest in dollars and cents and which cannot be calculated when we consider what it will mean to the health and welfare of our community and especially of our children.

If we could for one moment see the changes that occurred in the states in the far south after the Rockefeller Foundation together with the various Boards of Health in these states took up the problem of hookworm in 1911 and 1912. In 1911 and 1912 I saw poor, emaciated, weak and sallow looking children. In 1913 I had the opportunity of going through the same communities after the children and the adult population had been treated for hookworm. You would not have recognized the towns in many instances. The color had come back to the cheeks of the children, they were bright and full of energy and playing around in the school yard, calling each other and laughing in their play, whereas a year and a half before, most of them had been sitting around talking or eating their lunches, a picture of dejection and despair.

What it has meant to the South to treat the population that was not able to work because of this disease, can be better seen in the advancement of commerce that has taken puace in the last ten years. It has meant millions upon millions of dollars to these states, and hundreds of new enterprises being opened up in localities that were dead.

We have not that scourge in this part of the country that they had, but our children mean just as much to us as they did to them, and the County Board of Health in every county in the State of Kentucky will mean to us an advancement that we cannot calculate in the actual wealth that it will mean to our State three or four years after this dream has become a reality.

We are proud of the history of our State, and we have reason to be, but we must remember to keep the name that we hold among the States of this Union. To do this we must keep pace with the progress and with the development of the commercial and scientific means that other states are availing themselves of.

We have all that any other state has and the only thing that we need to realize is the necessity of this most fundamental and necessary agent for prosperity. How much we put into life and how much we get out of life depends upon our health and the health of those we love and of the community we live in.

CHORION EPITHELIOMA: REPORT OF TWO CASES.*

By John R. Wathen, M. D., F. A. C. S.,
Louisville.

This interesting malignant tumor usually arises in the fundus and the adjacent parts of the anterior and the posterior walls of the uterus; exceptions sometimes occur, the primary growth being found in the vagina, the labium, the fallopian tube, or the ovary.

It is a malignant tumor that develops from the epithelial elements of placental tissue. It affects women who have at some time or other been pregnant, sometimes several years have lapsed before the appearance of the tumors.

It has been found that the immediately preceding pregnancy terminated as a hydatidiform mole. These tumors may occur at any age within the limits of pregnancy, and cases have een recorded at seventeen and one at fifty-five.

Saenger, who first described this tumor, had five patients who died from general metastases within seven months, and he regarded the disease as absolutely hopeless. Polano, a few years later, reported 50 per cent and Teacher reported 63.3 per cent of cures. Some cases have been known to have healed spontaneously.

One of the earliest symptoms is severe hemorrhage usually followed by early and profound anemia. Ulceration of the growth and decomposition of the discharges, indicated by an offensive odor, occur earlier than in carcinoma and form a striking feature of the condition. Metastases frequently occur to the lung, the brain, the liver, the spleen and the pancreas. The bleeding from these tumors is due to the corrosive action of the tissue on the walls of blood-vessels with which it comes in contact.

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*Read before the Jefferson County Medical Society.

A diagnosis by examination of curettings is difficult, and patients are often lost as a result of a negative report from the pathologist; but the diagnosis is not usually difficult when we can obtain a careful history and have studied the symptoms.

Treatment should consist of the earliest possible removal of the uterus, after the patient has been gotten into condition to withstand the operation, having been given blood transfusions and other aids.

Case 1. Mrs. D., aged 18 years, was brought to St. Anthony's Hospital December 20, 1926, in a very weakened condition due to uterine hemorrhage, with a pulse of 124, temperature 100°F. She gave the following history:

Was married in March and had a miscarriage (not induced) in June. From this she apparently recovered and on December 4, 1926, had a severe hemorrhage, and was removed to a hospital in her home town in Indiana, where she was curetted and what was supposed to be a hydatidiform mole removed.

When the uterine packing was removed in 48 hours, another severe hemorrhage occured and after repeated packings, the use of lactate of calcium and hemoplastin, she was brought to us very weak and anemic. Hemoglobin 30%, erythrocytes 1,250,00, leucocytes 5,500, polymorphonuclear cells 70%.

Saline hypodermoclysis, 1000 cc. was given at once and arrangements for blood transfusion made.

Examination showed uterus enlarged to about four times normal size for her age and weight.

The next day, after proper precautions, such as typing of the blood of donor and recipient, we did a citrate transfusion using her sister as the donor. About 750 cc. of citrated blood was slowly transfused by the open method of incising the vein of the recipient and tying the canula in the vein, which was exceedingly small and difficult to find. This was, of course, done under local novocaine anesthesia.

The uterine packing was removed about every three days and various reconstructive agents used to improve her general condition.

After one week, when her blood had improved to 46% hemoglobin, we did a rapid abdominal hysterectomy, using novocain and nitrous oxide anesthesia. She stood the operation well, and made a good recovery.

Pathological report of Dr. John D. Allen, was chorio-carcinoma infiltrating uterine wall.

Recent report said she was well, and no evidence of a recurrence. Lantern slides will show the tumor, with gross photographs and microscopic slides.

Case II. Mrs. A., aged 25 years, was admitted to St. Anthony's Hospital April 27, 1927, with a diagnosis of uterine fibroid and hemorrhage from the same. Patient had given birth to one living child, several years previously.

She gave a history of having been irregular in her menstruation, often lasting for two to three weeks, and then not recuring for five or six weeks. No history of miscarriage could be obtained by her physician or ourselves.

Examination showed an enlarged uterus, about the size of a two months pregnancy and blood discharging from the cervix. This blood readily clotted; the cervix was not dilated and not soft.

Blood examination: Hemoglobin 85%, erythrocytes 4,310,000, leucocytes 9,450, polymorphonuclears 75%, coagulating time 3 1-2 minutes.

We prepared her for operation the next day and after opening the abdomen found the uterus enlarged as previously stated but rather soft and suspicious of pregnancy. I asked Dr. Hendon, who was operating in another room, to step in and advise whether we should remove the uterus, giving him a history of the case. Upon his advice we did a supravaginal hysterectomy, cauterizing the cervical canal with an electric cautery.

The uterus, when opened, revealed a typical chorion-epithelioma, which we will show in photographs of the gross and microscopic sections. The patient made a good recovery and has remained well to date.

Pathological report of Dr. Jno. D. Allen: Gross specimen, uterus with bulky adherent ragged tumor, 3 1-2x4 inches, filling cavity of uterus. Tumor composed of vesicular shredded masses, blood clots, altered by hemorrhage and suppuration and showing pronounced dark pigmentation. Uterine wall shows numerous pigmented areas. Endometrium shows areas of implanted vesicles and erosions (after tumor was removed).

Microscopic findings: Chorio-carcinoma infiltrating uterine wall.

DISCUSSIONS.

L. Wallace Frank: Dr. Wathen has reported two very interesting cases and his results have been most gratifying. As stated in his report, recurrences are the rule following removal of chorio-epithelioma, and it is unusual for the patient to remain free from the disease for the length of time shown in his first case. These growths generally metastacize in the bones or lung. In the second case sufficient time has not yet elapsed to decide whether there will be a recurrence or not.

Chorio-epithelioma is to be suspected in any case where prolonged hemorrhage follows either delivery or abortion. Curettage is of no value in these cases, except diagnostic purposes. It may even hurry metastases. When suspicion exists, as in the second case reported, I believe it is wiser to give the patient the benefit of the doubt by performing hysterectomy rather than to temporize awaiting more signs upon which to make the diagnosis.

Guy Aud: Chorio-epithelioma or chorio-carcinoma is a very unique tumor. It is the only neoplasm of which we have knowledge that does not originate within the tissues of the patient, but originates in the tissues of some one else. In other words, chorio-epithelioma originates in the chorionic villi of the fetus. The very rapid development and dissemination of this type of malignant tumor may be explained by the fact that the chorionic villi intimately attach themselves to the blood sinuses and lymph vessels.

Chorio-epithelioma practically always follows abortion. However, it may occur after full-term pregnancy, and as a rule not very long after delivery. When a patient continues to bleed following abortion or delivery, the presence of chorio-epithelioma should be suspected.

There are two types of cells which form the covering of the chorionic villi: (1) the cells of Langhans, and (2) the syncytial cells. Tumors composed mostly of the cells of Langhans are described as chorio-carcinoma, and are frankly malignant and metastaize extensively. The other type composed exclusively of syncytial cells are retrogressive in character, do not metastacize, are doubtfully malignant, and may disappear entirely. This would explain the disappearane of some of these tumors as Dr. Wathen stated in his paper. Such tumors are called syncytiomata.

As to treatment: If we are able to determine definitely that we are dealing with chorio-carcinoma, naturally very radical procedures should be undertaken, and even then very few of the patients will be cured. On the other hand, if we are able to determine that we are dealing with the retrogressive type of tumor, that is one composed entirely of syncytial cells, only a very minor surgical procedure will be necessary.

It should be borne in mind, however, that the prognosis in all these cases must be considered grave. In other words, it may not always be possible to definitely determine the exact type of tumor with which one is dealing. It must be remembered, also, that the tumor may contain both types of cells described, that is the cells of Langham sand syncytial cells.

Dr. Wathen is to be congratulated on having observed two such interesting cases within such a short period of time, and also on the results he obtained.

Frank P. Strickler: An interesting feature in Dr. Wathens' report is that both his cases were very young women. These tumors usually occur in multipara between thirty-five and forty years of age and frequently are associated with hydatoid moles. The symptoms of the condition are noticed from four to five months following pregnancy, however cases are on record where the tumor occurred ten and eighteen years after pregnancy.

As has been mentioned there are two types of chorioma described by some authorities as chorioma benignum and chorioma malignant. By others as chorio-adenoma and chorio-carcinoma. The differences noted in the two types of tumors have been discussed by pathologists for many years.

It is known that chorio-adenomata do not metastacize as readily as chorio-carcinoma. That when chorio-adenomata do metastacize the metastasis is usually limited to the pelvic region.

Chorio-adenomata occasionally undergo spontaneous cure. Pick, who reported several cases where this occurred, explains that thrombosis takes place in the surrounding veins thus destroying the blood supply to the tumor.

Chorio-carcinoma, as we know, is very malignant also very aggressive locally, it undergoes early and widespread metastasis. The prognosis is grave. Death results from cachexia, hemorrhage, pulmonary embolism, peritonitis or cerebral invasion. Doctor James Ewing states, "I have been unable to find any record of operative cure of chorio-carcinoma."

I have enjoyed very much the report of Doctor Wathen's two most interesting cases and wish to congratulate him on securing such perfect lantern slides of these interesting tumors.

Malignant Endocarditis Caused by Bacillus Pyocyaneus.—Bungeler relates the case of a man, aged 65, who had had erysipelas with endocarditis as a sequel. Later, a mitral insufficiency developed. Finally, because of a nervous disorder, pyretotherapy was employed ,a mixture of bacilli (components not stated) being injected to induce fever. In a few days symptoms of malignant endocarditis were manifested. Death resulted on the sixteenth day. Bacteriologic examination of sections of the spleen disclosed B. proteus, B. pyocyaneus and gram-positive cocci.

ENCEPHALITIS SIMULATING BRAIN ABSCESS: CASE REPORT.*

By J. Kenneth Hutcherson, M. D.,
Louisville.

Case report of boy 11 years of age. Several months prior to the onset of the present illness, the patient had felt tired, worn out, and could not get enough sleep. His tonsils were bad and the school doctors advised the father on several occasions to have them removed. On December 12th, a tonsillectomy was performed under local anesthesia. For one week, following the operation, the doctor was unable to treat the throat or give any medication due to the lack of cooperation on the part of the patient. At the end of one week following the operation, he began to complain of pain in his left ear which persisted for six to eight days and gradually disappeared. No history of discharge. He then began to feel some better and his condition seemed to show improvement for a period of about three weeks, at the end of which time, he returned to school. He attended school two days and felt all right. At midnight following the second day in school, he was seized with a violent headache which was followed by nausea and vomiting. One-half hour after the vomiting attack he dropped off to sleep for a few minutes. His parents became greatly alarmed when they called to him and could not get an answer. He stared at them with his head drawn back but could not say anything, and later stated that he heard everything they said but could not talk. This aphasia persisted for about one hour. His temperature, pulse and respiration at this time were normal. Twenty-four hours later his temperature was 101°F., and pulse 110. His headaches were general and excruciating in type. He was observed for 48 hours, treatment being symptomatic, with no change in condition except the temperature and pulse receded to within normal limits.

A lumbar puncture was made on February 8, under gas anesthesia, which showed the fluid to be under some pressure. Abont 20-30 cc. of spinal fluid was withdrawn. Globulin was negative. Sugar showed 70 mg. per 100 cc. of fluid. There were from two to four cells to the cubic millimeter. A twenty-four hour culture was negative. Spinal fluid Wassermann was also negative. Two hours following the spinal puncture he complained of throbbing pains in his head with some nausea and vomiting.

On February 9,, the following day, he complained of double vision. Pupils were equal and reacted to light. There was a suggestive positive Kernig. Temperature and respiration were normal. The pulse ranged around 64. Patient lay on side great deal of the time with head drawn back and lower limbs upward. Laboratory work made on this date showed leucocyte count of 16,600 per cubic millimeter; polymorphonuclear neutrophils 81%, lymphocytes 18%, transitionals 1%. Urinalysis was negative except or three-plus acetone and one-plus indican. X-ray examinations of the mastoids, sinuses, and chest were negative.

On February 10, an eye ground examination was made by an ophthalmologist, which showed the edges of the discs slightly indistinct. Veins very large and full but not tortous. Arteries normal. Movements of the external ocular muscles apparently normal. Patient said he had not noticed any disturbance in lower limbs, but both arms went to sleep. Pain in head very severe. Blood pressure reading was systolic 110, diastolic 70.

On February 11, patient cried out aloud with pain in head, more marked in right parietal region, and with teeth aching on right side. Still complained of double vision and seeing purple stripes when first opening eyes. Reflexes equal in both lower limbs and there was a positive Kernig. Temperature was 99.4°F., pulse and respiration practically normal. Blood count on this date showed 16,900 leucocytes per cubic millimeter, polymorphonuclear neutrophils 79%, lymphocytes 21%.

Another lumbar puncture was made at 10:30 the following morning, which gave a reading of 200 millimeters by water manometer. 20-30 cc. of fluid was withdrawn. Examination of the spinal fluid at this time showed a positive globulin and from 40 to 50 cells per cubic millimeter. At one o'clock, he complained of feeling out of his head. His temperature, pulse and respiration at this time were practically normal. At 5:00 p. m. his temperature went to 100.4°F., pulse 80, but respiration remained normal. There was no apparent change in his general condition at this time. He went into coma at 6:15 and died at 7:40.

Unable to get an autopsy.

DISCUSSIONS.

James W. Bruce: I do not believe a positive diagnosis can be made in a case of this kind without an autopsy. There were too many possibilities and we could not absolutely exclude them. There were a number of things which suggested themselves: the history of pain in the ear some time before would be in favor of otitis media and the later head symptoms might suggest brain abscess, but the lack of choked disc would be against that. The lack of choked disc would also be against brain tumor. The history was not characteristic of tubercular meningitis and the Wassermann reaction being negative would be against syphilitic meningitis. The cell count was normal on first spinal puncture; four days later it shows 30 to 40 cells, with slight increase in pressure both times. The Wassermann was flat negative the first time, and was reported one-plus the second time. The symptoms were not characteristic of either tubercular or syphilitic meningitis. Another thing that suggested itself was atypical poliomyelitis, but the low cell count in the spinal fluid and lack of other evidence make that diagnosis unlikely. I believed at the time that the child had encephalitis. There was a history of ill-health, fever, leucocytosis, but all physical signs were indistinct. The optic discs were practially normal, slightly hazy around the edges but not marked, all seemed to me to be in favor of encephalitis. However, as I have said, we cannot make a positive diagnosis in a case of this kind without an autopsy, because we cannot exclude all the possibilities.

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*Read before the Jefferson County Medical Society.

Gaylord C. Hall: The case was somewhat of a puzzle to me. There were no indicative signs about the eyes. When I first saw the child he was lying in bed perfectly apathetic, but could be aroused sufficiently to answer questions, and would then lapse into an apathetic state. My suggestion was that the child had encephalitis. I could not discover any distinct intraocular symptoms. The patient offered us no co-operation and examination was therefore difficult. There was no apparent deviation of the eyes and he was finally induced to move his eyes in every direction. There seemed to be no extraocular paralysis. The pupils responded normally to light and accommodation. My examination showed only one thing of importance, and that was a slight blurring of the edges of the discs and there was some over-distension of the veins. I thought the eye grounds were rather indicative of some increased intracranial pressure, but others who saw the patient did not believe this was true. Had there been a tumor or abscess of the brain there would have been more changes in the eye ground.

John J. Moren: The case reported is very interesting. Dr. Hutcherson explains that the reason for lack of co-operation on part of the patient was that he belonged to that class known as "spoiled" or unmanageable. The reason I asked him that question was that I have seen cases of encephalitis following tonsillectomy, and that was the first manifestation the patients had after the operation. All of us who have seen these cases know that pain in the head is sometimes terrific in encephalitis.

As to the diagnosis in the case reported: I cannot venture an opinion other than I considered it a case of encephalitis. It must be remembered, however, that lesions in certain portions of the brain sometimes give rise to very interesting phenomena in these cases of encephalitis.

Adolph O. Pfingst: As there are no definite symptoms suggestive of any certain intracranial condition we can only guess as to the nature of this case. My guess would be pachymeningitis. Outside of the lethargy and headache in this case there was nothing upon which to base a diagnosis of encephalitis lethargica. Although the absence of ocular motor paralysis does not exclude the presence of encephalitis we know that the extrinsic and intrinsic muscles are frequently involved in this disease.

Regarding brain abscess, it seems to me that it was too rapid in its development. The abscess of papilledema would also not lead one to suspect an abscess. The persistent headache and lethargy following earache with some rigidity of the neck, the presence of an inflammatory nerve (blur of the disc) rather than a papilledema leads me to believe that the dura mater became infected through the roof of the middle ear, even though the miscroscopic picture of the spinal fluid would not suport this view.

Morris Flexner: This case looks to me more like one of brain abscess than encephalitis. While the blood count is frequently of no value in brain abscess a leucocyte count as high as this one with a high polymorphonculear percentage would seem to favor brain abscess. The fact that there was no change in the spinal fluid at the first examination and an increase in the cells at a later one might suggest an extension of the abscess. Laboratory findings of the spinal fluid in encephalitis may or may not be of great help. The pressure of the spinal fluid here was only slightly increased and the sugar content was well within normal limits.

The question of choked disc in encephalitis is of interest. Recently we had under observation a case of suspected encephalitis in which the patient showed a choked disc. I wrote to Dr. Frederick Tilney of New York concerning this case and he replied that while choked disc does occur in encephalitis and that he had seen it several times he was always more suspicious of an expanding lesion in the brain when this sign was present. While this boy did not have a pronounced choked disc Dr. Hall's report seems to indicate an increase in the intracranial pressure. I think it would take an autopsy to answer the question absolutely.

R. Hayes Davis: This is one of those uncertain cases where we were absolutely at sea in making a correct diagnosis without an autopsy. The case was presented mainly to elicit discussion and it is a most interesting case for that purpose.

I am inclined to agree with Dr. Flexner that this child had a brain abscess rather than encephalitis. I believe the symptoms were strongly indicative of brain abscess. Of course we have the two conditions—encephalitis and brain abscess—to consider. The symptoms in both conditions are very atypical in many cases, but I believe in brain abscess, they are particularly atypical. I remember hearing a very distinguished neurologist in Philadelphia make the statement that if you are absolutely in doubt as to the condition that exists within the brain, call it brain abscess and you are practically certain to be right. I have had this brought to my attention on several occasions, at autopsy, where the symptoms were absolutely atypical, where the patients had been examined by several competent neurologists who were unable to make a diagnosis, and yet autopsy showed distinct abscess formation in the brain. I recall one patient in particular who gave no history of having been ill. He was found on the street in a state of coma and was brought to the hospital with no localizing symptoms whatever, simply in deep coma. Autopsy in that case revealed a very large abscess of the brain.

In the case reported the rather long duration of the symptoms, it seems to me to be in favor of brain abscess, especially pain in the ear. The leucocyte count was higher than is usually found in encephalitis, the spinal fluid was under only slightly increased pressure and showed only 40 to 50 cells which is not very high but higher than one would usually expect in encephalitis, although it may be much higher, the blood sugar not being as high as usually found in the latter disease.

The decidedly atypical symptoms that had existed for some time with the most extreme type of headache, which seems to have been the most prominent symptom in this case, would present to my mind more a picture of brain abscess than it would encephalitis. Of course choked disc is important but not an infallible sign in these cases. After considering the possibilities in this case, I would lean toward the diagnosis of brain abscess rather than encephalitis.

Gaylord C. Hall: Several of the gentlemen have discussed this case from the standpoint of brain abscess. I would like to say a few words against that diagnosis. In the first place, Dr. Hutcherson stated that roentgenray films were made of the mastoids and sinuses a few days before, and all were found negative. If there were a brain abscess in a case of this kind, it would reasonably be expected to arise through some infective process involving the ear or the sinuses. Both these were tested and found negative. My examination of the patient's nose, throat and ears disclosed nothing wrong. I do not know who removed the tonsils. We examined his nose and then applied suction. There was no evidence of pus in either nostril. Both tonsils were thoroughly healed and there was no evidence of inflammation. Another point that would seem to me to negative the diagnosis of brain abscess was the fact that this boy had only 40 to 50 cells in his spinal fluid practically twenty-four hours before he died. It seems to me if there were a brain abscess existing about to rupture into a ventricle the spinal fluid would have shown more cells than were present in this case.

Walter Dean: The symptoms of this case are those of increased intra-cranial pressure without localizing symptoms. In the absence of choke disc, nystagmus, or muscular symptoms, we would suspect encephalitis or meningo-encephalitis rather than brain abscess. This case ran a rapid course and brain abscess develops for months before its acute ending. Dr. Hutcherson has told us that roentgen-ray examination showed both mastoids and nasal sinuses negative. Dr. Hall's examination confirms these findings. This probably excludes a possible origin of brain abscess. I do not believe that the pain in the ear a few days after tonsillectomy implicates the ear but is the usual reflex pain from the unhealed tonsillar fossa to the ear.

L. Wallace Frank: I do not believe a positive diagnosis could have been made in the case reported. There was nothing especially characteristic about the spinal fluid from a diagnostic standpoint, and the symptoms throughout were rather atypical. I believe the child had encephalitis rather than brain abscess.

As to the presence of choked disc in encephalitis: I saw some time ago a woman who had unquestioned encephalitis with choked disc of 6 d. A decompression operation was performed and the woman is living today. In that case the first spinal puncture showed fluid with a practically normal cell count. At subsequent puncture, two or three weeks later, the cell count was 40.

The exact cause of death in the case reported is the most interesting feature to me. I do not understand what caused death unless it was general asthenia.

Wm. E. Gardner: I had the privilege of seeing the patient with Dr. Hutcherson in the case he has reported. The day before, he had described the symptoms to me, and they seemed to be so indicative of brain abscess that I suggested Dr. Spurling be asked to see the patient. Dr. Spurling ruled against brain abscess on the basis that there were not sufficient symptoms to warrant such a diagnosis. There were no localizing signs whatever, and the slight changes in the optic discs he thought might be due to encephalitis.

The history of extreme fatigue in this child previous to his illness is significant and gives a rather characteristic picture of encephalitis.

Headache, fever and diplopia are, of course, the typical triad of indicative symptoms noted in encephalitis. In the presence of diplopia it is not always easy to discover inequality of the external ocular muscles. The muscular disturbance may be slight and yet the patient has double vision.

If this patient had had brain abscess the spinal puncture that was made a few hours prior to death should have shown more evidence of that fact; had he developed meningitis as the result of brain abscess, there would certainly have been a marked increase in the spinal fluid cell count. The cell count in encephalitis may vary from normal to 500, 600 or more cells. In this case the cell count was not far out of line for encephalitis. The sugar content was 70 mg. per 100 cc. which was also not very high, but slightly above the maximum normal limit. I understand the normal sugar content of the spinal fluid is between 45 and 60 mg. in most healthy individuals.

After seeing the patient and studying the case with Dr. Hutcherson, Dr. Spurling, and several others; in the absence of any localizing signs, no Babinski, no Oppenheim, no inequality of the reflexes; the fact that the child had lethargy from which he could be aroused as mentioned by Dr. Hall,—all of these things taken together lead me to believe the case was one of encephalitis. Yet on account of the possibility of brain abscess, it was included in the title of the case report, as it could not be excluded, and no positive diagnosis could have been made in this case without an autopsy. We are likewise unable to explain the cause of the comparatively sudden fatal termination. The child had been taking little nourishment, however, his temperature rose during the last twenty-four hours, and symptoms of exhaustion had developed. Possibly some increased pressure occurred following the last spinal puncture with drainage, or shifting of position may have caused respiratory-paralysis, but this cannot now be determined.

The case is extremely interesting and I am glad Dr. Hutcherson presented it for our consideration.

Principles of Intravenous Medication.—Kolmer discusses intravenous therapy from all angles. He says that intravenous medication should never be the method of choice if subcutaneous, intramuscular or oral routes of administration are possible and meet the requirements. As a general rule, intravenous injections are indicated under grave circumstances, in acute conditions and emergencies, or when the medicament is of such a nature that it cannot be otherwise administered.

TULARAEMIA.*

By P. C. Sanders, Danville.

Tularaemia is by no means a new disease, as it has been spreading its way eastward from Tulare County, California, from which County it derives its name, for twelve or fifteen years.

It may be defined as a specific infectious disease caused by the Bacterium Tularense. It is primarily an acute fatal bacteraemia of wild rodents, human infection not being necessary for its propagation. According to the United States Health Service, human cases have been reported from twenty-seven states, including the entire border of our country.

This bacterium is a small, non-sporeforming, non-motile, aerobic germ, and stains well with aniline dyes. Heating to 58°C. for ten minutes kills the organism, and thorough cooking of infected tissue renders it harmless. So far this germ has not been isolated from man on culture media, but has been necessary to inoculate guinea-pigs or rabbits with human tissue and obtain a culture from these animals.

This disease occurs chiefly in the different types of rabbits, ground squirrels, and rats, most of the human cases having been traced to rabbits.

There are several means of transmission to man:

1. Through the bite of an infected woodtick, which by the way the tick had acquired from some infected host. This means of infection is found particularly in the Northwestern section of our country.

2. Through the bite of the deer fly, found in Utah, Montana, and Wyoming.

3. Through the bite of animals. The first one to be reported to the Government was due to the bite of a young coyote. Other cases have been reported, due to the bite of a ground squirrel or hog.

4. Through the contamination of the hands or skin with tissues or bloody fluid of infected rabbits. From jack rabbits west of the Mississippi, and from the cotton-tail east of it. This infection occurs mostly during the months of November, December and January.

Doctor Garberson, of Miles City, Montana, gives a summary of sixteen cases from Southeastern Montana as follows:

Tick Bite	5
Jack Rabbit	4
Picked Tick from Horse	2
Coyote Bite	1
Scratch of Hand	2
Undetermined	2

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*Read before the Central Kentucky Medical Convention at Danville, April 19, 1927.

These cases also showed that 12 cases were male and four female, the youngest being 8, and the oldest 63 years.

Doctor Edward Francis, a pioneer worker in this field, reports 219 cases, 167 males, and 52 females, due, he thinks, to more exposure among males.

The pathology in man is usually of a subacute or chronic nature, the lesions simulate closely to that of tuberculosis. Clinical Types—Dr. Francis classifies this disease into four types:

1. The Ulcero Glandular Type: A papule appears at the site of infection which is inflamed, and later breaks down and leaves an ulcer having elevated edges and a punched-out appearance. The glands of that region enlarge, the skin over them becomes reddened, and later, after several weeks, the glands may break down. Suppuration does not always occur, but the glands remain swollen and tender for two or three months, and slowly return to normal.

2. The Occulo Glandular Type: In this case, the primary infection occurs in the conjunctival sac, there is marked swelling and a watery or purulent discharge, and from them the infection spreads to either the parotid, sub-maxilliary, cervical, or axillary glands. Francis reports four members of the same family, apparently infected from cottontail rabbits, which had this type. Three of them died at the end of a week, the infection being in both eyes, the fourth recovered, but was unilateral.

3. The Glandular Type: This follows the dressing of infected rabbits with symptoms like the Ulcero Glandular Type.

4. The Typhoidal Type: This type occurs among laboratory workers. There is no enlargement of regional lymph glands, nor is there any primary ulcer. Fever is the most prominent symptom, resembling typhoid fever, differentiated by sudden onset, negative widal and positive agglutination test of Tularense, incubation period being from one to nine days, three days being the average onset, sudden and severe headaches, chills, vomiting, and prostration. Fever of a moderate degrees is an early symptom. Recovery is slow, and it is rather a constant characteristic for the patient to complain of weakness for several months. Recovery is the rule. Only seven deaths have been reported out of 253 cases, and three of those were from the same family as already reported. One attack confers immunity so far as is known.

The differential diagnosis can usually be made from points I have outlined, or by sending a suspected blood serum preserved by trikesol, to Doctor Edward Francis, United States Public Health Service, Washington, D. C., or to our own State Board of Health, Louisville, Ky., remembering that the agglutinins are absent during the first week of the disease, but constantly present after that time.

Treatment is mostly prophylactic, and laboratory workers and those who possibly handle infected animals, should wear rubber gloves. Thorough cooking kills the bacterium, and consequently there should be no danger in eating an infected rabbit which has been thoroughly cooked. There has been no vaccine or serum as yet developed which will either prevent or cure the disease.

In general the treatment should be to rest in bed, and other indicated measures. The surgical treatment of the infected glands and papule should be conservative. In my experience, early incision does nothing to hasten recovery and oftimes seems to prolong the infection. Incision after fluctuation has approached the skin seems to me to give the best results.

Report of a case in 1924, of a man, 42 years old, who worked for the railroad. This man's right finger was infected, and it failed to heal under treatment in a reasonable length of time. The end of the finger sloughed away, infection spread to the axillary glands, then cervical, and there appeared six or seven soft, fluctuating abscesses within the buccal cavity, which I opened and drained. The contents of these abscesses is a very thin, bloody, sero-purulent liquid, with not much odor.

This man lost all of his teeth, and for months looked as though he would give a report to Saint Peter, but after five or six months, he finally rallied and at the end of one year was back to near normal.

This is a serious disease, the prophylaxis of which should be spread through our newspapers before frost and the cotton-tail this year.

Lactic Acid Content of Blood in Disease of the Liver.—Adler and Lange found the determination of the lactic acid content of blood in hepatic diseases of diagnostic and prognostic value. In cases of jaundice, an increase above 30 mg. is of serious prognostic significance. In the differential diagnosis of obstructive jaundice, an increase in blood lactic acid is indicative of injury to the liver cells. In the presence of carcinoma, such an increase indicates that metastases have formed. In colelithiasis and in carcinoma with icterus but without metastases the lactic acid values are normal. Catarrhal icterus, with normal values, has a avorable prognosis. In heart disease accompanied by marked hepatic stasis and cyanosis, the lactic acid of the blood is increased in amount.

JAUNDICE.*

By Louis Frank, M. D., F. A. C. S.,
Louisville.

Jaundice, as defined by Osler, is a condition characterized by the coloration of the skin, mucous membranes and fluids of the body by the bile pigment. It is a symptom found in many diseases both medical and surgical. For reasons which we will elaborate the clinician must quickly appreciate its cause, and should this be surgical it must be remembered that such patients must be especially studied and prepared to overcome the probable extra hazard which they present.

It is generally accepted that the bile pigments are derived from the hemoglobin of the blood, and, since hemoglobin has been looked upon as the mother substance, we have come to recognize that jaundice may be either hepatogenous or hematogenous in its origin. Naunin, Stadleman and Minlowski thought all jaundice hepatogenous, and it was not until 1910 that Lyon-Cain showed that this manifestation might be extrahepatic or hemolytic. Whipple in 1916 verified these latter observations, but thought the pigment metabolism not such a simple process. We do recognize, however, that bilirubin is formed as an end product. Whether normally this is done solely by the liver cells or mainly by them, or by the recticulo-endothelial system in general, or whether the liver "exercises not a secretory but an excretory function in regard to bilirubin," are interesting questions open to further study.

In the normal blood serum the amount of bilirubin is constant for the individual under certain conditions, and it is found in slightly increased amounts in the liver, spleen and bone marrow. An increase in the amount constant in the serum of the individual, even though not manifested by skin discoloration, is to be looked upon as pathological and also as possessing clinical importance.

The surgeon is probably most concerned with those types of jaundice hepatogenous in character which owe their origin to obstruction of the biliary outflow, and it behooves him here to be able to recognize degrees of difference in the symptoms, not only from a diagnostic standpoint and from the viewpoint of prognosis, but also that of preparation of his patient, so as to surround him to the greatest degree with safeguards during his operation.

Estimates of not only the presence of increased quantity of bilirubin in the blood by an accurate method, but also of the variations in amount and of the relative quantity present, become then not only desirable but actually necessary and essential. We have such accurate methods in the tests of the icteric index by the methods of Van den Berg, Meulengracht and Fouchet. There can be no question as to the desirability of such tests when we bear in mind that often sallowness or the discoloration of Addison's disease may be mistaken for jaundice, that the light in the patient's room may cause misinterpretation, that its increase or decrease as determined is a matter of sight memory, that color is often no indication of progress, and also that bilirubin retention must have existed for some time before the skin, sclera or urine are discolored. Bilirubin being in the blood plasma, we have in our laboratory tests at once a positive and definite reading from which positive and accurate inference may be drawn.

It is also stated that by means of the Van den Bergh test "the pigment molecule (bilirubin) reacts differently with Ehrlich's diazo reagent depending on whether or not it has passed through the polygonal cells of the liver." (McVicar).

In a study of the stool, or better the duodenal drainage, we have a method of distinguishing hemolytic from obstructive jaundice. In jaundice of intra-hepatic origin, whether toxic or infective, we are usually able to get bile in the duodenum, and though it may be absent when the test is first made if repeated for three or four successive days will be successful. As indicated above we are also thus able to recognize and differentiate the jaundice from obstruction from that due to splenic and bone marrow disease.

Very recently in my clinic at the Louisville city hospital there was sent in a woman with jaundice, deepening, persistent and painless. She had ascites, the blood picture was not impressive. The diagnosis was carcinoma of the pancreas with obstructive jaundice. Discussing the case with the students the significant fact was developed that bile was constant in the stool. This with absence of pain, of itching, even though the blood picture was unimpressive,—the cell fragility had not been tested,—cast doubt on the diagnosis. By palpation, despite the ascites, a splenic enlargement could be detected. Our pre-operative assumption was then changed from malignancy to Banti's disease in the terminal stage which latter was confirmed by operation, the liver being atrophic and markedly cirrhotic, the spleen very large. Had the patient's blood been tested by Van den Bergh's method, the typical color reaction would have been obtained only after the addition of alcohol, whereas had an obstruction caused the jaundice such an addition would not have been required.

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*Read before the Louisville Medico-Chirurgical Society.

Pain is a quite important symptom in connection with jaundice in arriving at a correct answer as to the cause of the latter; also its character has some bearing. The pain of malignant jaundice is more of a soreness or of an aching and boring character. Yet, not always is this characteristic, and within the past year we have had one pleasant surprise and one of a fear confirmed, basing our diagnosis on the variation of this symptom. The pain of calculus is usually, not always, colicky and will probably require morphine to relieve.

The absence of pain with associated jaundice presents to me the greatest diagnostic difficulty. In the higher grades, that is those with the deepest jaundice, if the patient is past the fourth decade, pancreatic cancer should be looked upon as the most likely cause. Bile will be constantly and persistently absent from the duodenum (or stool). We have not always found in these cases an enlarged, distended gall bladder as pointed out by Courvoisier; on the contrary we have observed in several instances a small, undistended viscus, no calculi being present. Again, we have observed an overdistended gall bladder which was not palpable before section.

It is of vital import to the patient that we do our utmost to differentiate the cause of his jaundice in these cases, and we do believe that our serum test will show variations in reaction which could be noted in no other way. Then, also, while these observations are being made we have time to prepare for the contingency of hemorrhage so common in the deeply jaundiced patient. This can be done by the administration of fibrinogen (hypodermatically,) calcium lactate twenty grains four times daily, or calcium chloride five cubic centimeters of a ten per cent solution intravenously for three successive days. This latter has been found highly satisfactory at the Mayo Clinic, according to Walters, and has given trouble but once, and in that instance sloughing ensued as a result of not getting the solution directly into the vein.

Transfusion of whole blood is to my mind of the very highest value not only to prevent operative or post-operative bleeding but for its effect in increasing resistance and in giving the individual a "tremendous boost."

Let us see for a moment the causes of jaundice and how our serum tests work out. McVicar shows this very beautifully in a schematic illustration which I will analyze:

(1) Hemolytic jaundice (splenomegaly) shows indirect Van den Bergh; no pruritus; bile in duodenum (stool); absence of pain; serum pigment increased, but reaction indirect; (possible) increased fragility of red cells.

(2) Intra-hepatic jaundice (toxic or infective); no colics, no pain or only discomfort; free flow of bile in duodenum; serum pigment high, declines gradually; reaction direct Van den Bergh.

(3) Obstruction within ducts (calculus, inflammation); colics, opiates required; bile in duodenum variable (absent); serum pigment curve irregular and not high; reaction direct Van den Bergh.

(4) Obstruction by compression (cancer, tumor); painless; duodenum, no bile (this constant); serum pigment level high and stationary or rising; reaction direct Van den Bergh.

To the surgeon the presence of jaundice, as indicated by the excess of serum color fixation, might also be of value from a diagnostic point, as I perceive it, in various types of intraperitoneal bleeding or in intrathoracic hemorrhage and in deep-seated hematoma from any cause.

To the general practitioner the estimate of the jaundice index becomes of importance from the standpoint of diagnosis and of treatment in all instances where the surgeon would be concerned, to both practitioner and surgeon from a prognostic standpoint it is inestimable. Its value will be more appreciated when it is remembered that the index must reach 15 (5 being normal by the Meulengracht test) before showing in the sclera, skin or urine.

So in pneumonia, high figures become prognostic. In arsenical poisoning from arsphenamine it is just as positive as in the hemolytic jaundice of pernicious or primary anemia.

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DISCUSSIONS.

J. A. Flexner: Dr. Frank has read a most interesting paper, and I was glad to hear him stress the laboratory features as much as he did. From the work of Van den Bergh and the other gentlemen named by the essayist we have learned a great deal about differentiating between the various types of jaundice, that is whether it is due to disease of the liver or gall bladder, or the result of hemolysis, from hemoglobin destruction, Banti's disease, toxic conditions, or any other cause that leads to obstruction and destruction of hemoglobin.

I was particularly interested in two aspects discussed by Dr. Frank in his paper. In several places he referred to the symptoms of itching in connection with jaundice. There are few symptoms that occur in medical practice, according to my experience, that ar eas difficult to handle as itching. I just asked my friend Dr. Lucas whether he had seen as much itching from obstructive jaundice as from the jaundice due to malignant disease. My experience has been that itching may be terrific in either case, but is generally more severe and difficult to manage in malignancy. The itching of catarrhal or obstructive jaundice is much more easily handled.

Some years ago a man with intense jaundice was admitted to the Jewish Hospital. He was brown in color and it was a question whether or not he had malignant disease of the liver or gall bladder. His liver was palpable almost to the pelvic brim, it was tremendous in size. Dr. Sherrill saw the patient. The preceding history was characteristic of gall stones. The man was young and every feature of the case justified our favoring a surgical exploration. The point I want to emphasize is this: when the surgeon opened the abdomen we saw a gall bladder that would hold a pint, and it had more perfectly white cholesterin calculi in it than I have ever seen before or since. This was before the days when cholescystectomy became popular, and provisions were made for drainage of the gall bladder. The liver receded and as the discharge of bile diminished the man began bleeding from the intestine. There had been no intestinal hemorrhage prior to his operation. We tried calcium salts, fibrinogen, etc., and finally the direct transfusion of blood, but despite anything we could do the man bled to death. I think this emphasizes very decidedly that if you are going to attempt to do anything for the bleeding that continues under such circumstances you must do it promptly because the hemolytic destruction of fibrin, erythrocytes, etc., will persist and finally cause death of the patient.

This whole subject is extremely interesting and I thank Dr. Frank for his splendid paper.

Virgil E. Simpson: I think there are few fields of investigation that have resulted in more illuminating information, not only from the standpoint of conditions as they are actually existing, but as well from the standpoint of causation,—and what is of equal importance perhaps, from the standpoint of prognosis,—than have resulted from study of the liver and bile passages including the gall bladder. Jaundice may exist as we now know, without there being visible or clinical evidence of it. It is merely a matter of the degree of concentration of bile pigment in the blood which demonstrates the presence of so-called clinical jaundice. However, prior to the time the stage of clinical jaundice is reached there exists a degree of jaundice which perhaps is just as important so far as ultimate recovery of the patient is concerned as after clinical jaundice has been demonstrated.

The essayist spoke of two tests particularly which have served to illuminate this field: one the demonstration of bilirubin in the blood known as the icterus index test, the other is a test which has been named for the one who outlined the principles underlying it, i. e., the Van den Bergh test. The two are complementary from the standpoint of diagnostic study. These are the principal procedures now used when following physical examination there present conditions which warrant further study of the biliary system as may be evidenced by tenderness on percussion over the hepatic area, enlargement of the liver which may be palpable, or the presence of bile in the urine. If in our judgment further investigation is necessary, the next step is to determine the percentage of bilirubin in the blood. This is accomplished by using the icterus index which is a reasonably accurate means of determining the amount of bilirubin present in the blood. It is not quite as accurate perhaps as other determination tests in blood chemistry. The icterus index merely tells one how much bilirubin there is in the blood, but gives no indication whatever of its source. It may be the result of obstruction to the bile in its flow through the hepatic, common or cystic duct, or it may be the result of direct changes which are taking place permitting the absorption of bile into the blood stream from the liver. The icterus index only measures the percentage of bilirubin in the blood stream. This is then supplemented by the Van den Bergh test which does give some very valuable data as to where the cause of the appearance of bile in the blood may reside. Naturally if no bile appears in the duodenum in doing the Van den Bergh test, the inevitable conclusion must be that obstruction has taken place somewhere in the passages at the beginning of the hepatic duct.

There are other laboratory steps which may be followed after completing the preliminary investigations which are of almost equal importance, but the two procedures mentioned are relatively simple, they cause little or no inconvenience to the patient, and the information thereby secured is usually conclusive. However, we have found that transduodenal—transgastric would be a better name—drainage is not a matter of particular discomfort to the patient. The duodenal tube can easily be introduced causing only temporary discomfort as it passes over the base of the tongue, and the patient is relatively comfortable during the time of drainage whether for one or another purpose, that is whether from the standpoint of determining the gastric or duodenal contents with or without study of the biliary secretion, and the information thus obtained may be exceedingly valuable when considered in connection with the icterus index. More important perhaps is the Van den Bergh test in relation to the clinical study in many instances. The appearance of bile in any quantity in the blood stream is of considerable importance for several reasons. We have found it important, for example, in our control of the administration of the arsphenamins in tertiary syphilis, and it may be of equal importance in other syphilitic manifestations which we see, in that it enables one to determine the degree of damage the liver has sustained, and whether the patient may safely receive further injections of the arsenicals.

Quite recently we have had occasion to see a man referred to us by a physician in North Carolina suffering from tertiary syphilis. The intravenous administration of arsphenamin had been inaugurated followed by a course of bismuth, later intravenous injections of mercury, then another course of arsphenamin. The course had not been completed when the man left North Carolina for Kentucky. The physician described in detail the treatment to be followed, and said the man was due to receive so many additional injections of arsphenamin and asked us to give them. Clinical and blood study showed that the patient was undernourished, his hemoglobin was considerably less than normal, that he had lost weight and strength and complained of easy fatigue. Palpation showed considerable tenderness over the liver area which led us as a matter of precaution to make further laboratory studies. Bile was found in the urine, the icterus index showed 18 whereas 5 is considered within the normal limit. We did not hesitate to advise, and wrote his physician accordingly, that we had declined to further continue the administration of arpshenamin, that the liver showed evidence of the accumulation of arsenic and we felt the patient would be bettered very materially by withholding arsenic and allowing the liver to recover from the insult it had received.

It is peculiarly true that our methods of clinical investigation of liver function from a diagnostic and prognostic viewpoint have outstepped our knowledge of physiology. One finds no difficulty in understanding the mechanical obstructive jaundice. In such a condition the bile pigment may be entirely normal in quality and quantity, the whole difficulty lying in the inability of the bile to escape from the liver or gall bladder with normal freedom and hence reabsorption occurs in the biliary capillaries. Such a condition may be brought about as a consequence of gall stones, malignant or benign growths which mechanically interfere with the passage of bile. In such a state the Van den Bergh reaction will be direct, since the bile passes through the liver in a normal way. On the other hand, however, there must inevitably be an impairment of the polygonal cells' ability to modify the bile, hence unmodified bile must accumulate in the blood serum which will result in an indirect reaction. This gives rise to what is termed in the laboratory as a dysphasic reaction. It is of considerable interest in this connection to recall just how far the physiological studies have gone in determining the location and method of formation of bile pigments. Many of our older conceptions require revision. While not accepted by all physiologists, the consensus of opinion seems to be that bilirubin is formed as a result of the breakdown of red blood corpuscles, by the cells of the reticulo-endothelial system found in the spleen, venus capillaries of the liver and bone marrow. Even our conception that bile, as a whole, is formed in the liver is subject to modification since it is now known that there is more bile in the splenic vein than in the splenic artery and that the degree of jaundice bears no relationship to the destruction of the liver in toxic cases and what is still more singular, the removal of the spleen relieves acholuric jaundice. It appears that the bilirubin passes to the liver as it is formed where it is modified in some fashion by the polygonal cells.

The tests Dr. Frank has described serve us in many ways from both the standpoint of therapy and prognosis. I have greatly enjoyed his presentation of the subject.

Morris Flexner: There are only two points I wish to discuss in connection with Dr. Frank's paper. Since the study of jaundice has attracted so much attention, various tests have been devised during the last few years for detecting bile in the blood, urine, etc. In addition to the tests mentioned by the essayist we have others for detecting bile in the urine that have been found valuable. One of them has a very long name, to-wit: paradimethylaminobenzaldehyd. It has been shown that an hydrochloric acid solution of this substance in 1:640,000 will detect bile in the urine. It is said to be more delicate than any other test for bile in the urine.

It is recognized that the majority of patients with jaundice, itching, etc. show a low blood calcium content. I have had an opportunity of studying several such cases. The question in my mind is what effect would the administration of parathyroid hormone have on these patients? Recently I have been interested in its use in the study of nephrosis. After the administration of parathyroid hormone a decided rise in blood calcium has been noted. In some cases in which it ranged from 3 to 5 the blood calcium was raised to 10 or 15 millgrams. This would be a very intresting clinical study to make on patients who have jaundice and might prove of some value.

L. Wallace Frank: I wish to make one point only. In our investigations of the blood of patients with jaundice we formerly tested the coagulation time only and based our ideas as to whether or not there would likely be post-operative hemorrhage on the length of time it took the blood to clot. I have recently had an experience with one case in which the coagulation time was normal and the bleeding time prolonged; the patient bled profusely, in the form of a general oozing, following operation. Since that experience we have changed our ideas regarding the test and now require that not only the coagulation time but also the bleeding time be within or very close to normal limits. I have come to the conclusion that whether or not we are going to have post-operative hemorrhage test of the coagulation time alone is not sufficient on which to base an idea and that the bleeding time should always be considered.

J. Garland Sherrill: One of the features which must be considered in discussing this subject is that jaundice is a symptom and not a disease. In his paper, Dr. Frank said that not until 1910 was it considered that jaundice might be extra-hepatic or hemolytic. I am sure he will recall that the late Dr. Clint Kelly on many occasions in the late eighties stated that jaundice might be hematogenous, hepatogenous, or obstructive in origin. He thought the blood was either impoverished or poisoned, that the liver was not functioning improperly, or that there was obstruction to the outflow of bile.

It has been only a few years since all medicine and surgery was based on study the observer gave the patient and the diagnosis was made according to the physical signs. Today we have many methods to help us determine certain things and we ought to be very proud that we are living in the present and not in the former age. I believe, however, that the older physicians enjoyed something that we are gradually losing, namely, their diagnostic acumen, their power of observation was vastly superior to ours. We overlook slight things they considered important and magnify others that we have developed ourselves. We are sometimes prone to delay therapeutic measures awaiting the results of various laboratory procedures.

Virchow and other of the older pathological writers recognize a close similarity between blood destruction and the biliary jaundice. E. Neumann and also von Rockhughausen described two forms of jaundice, the hepatogenous from obstruction of the biliary apparatus, the hematogenous arising from distraction of blood stream. Disintegration of the blood showed itself on the surface and in the sclera as yellow or greenish tinge, etc. We now know if hemorrhage occurs anywhere in the body, or there is obstruction to the circulation of blood through the liver, recognizable signs appear on the skin and sclera. In a case of eruption in ectopic gestation enough blood is absorbed to cause the sclera to be icteric. In the older days when a patient exhibited symptoms of appendicitis persisting for a number of days and there occurred some disintegration of the blood, if the patient received a chloroform anesthesia there was enough destruction in the liver cells to be followed in a few days by jaundice. Obstructive jaundice is a clear-cut condition, it appears whenever there is any obstruction of the bile passages, and absorption of bile into the blood stream is very prompt, bile also appears in the urine very promptly. Both the blood and urine will contain bile pigment before any evidence of icterus appears on the skin or sclera. When blood is destroyed in the vessels or tissues by acute infection and is resorbed there is a deposit of bile pigment in the skin and sclera resembling a case of obstructive jaundice. Under such circumstances the patient may die while time is consumed in making clinical and other tests in an effort to establish a differential diagnosis between obstructive and hemolytic jaundice.

Proper study in the majority of cases will determine whether the patient has jaundice or not before making any clinical tests. However, if the clinical dangers are not enhanced by delay it is advisable to make use of the tests which have been described.

In many instances the diagnosis has been made of gall stones because the patient had jaundice. It is worth remembering that jaundice may be present from obstruction not due to biliary calculi. Pain is a valuable symptom of gall stones, yet many patients so afflicted never complain of pain. Pain results from pressure of the distended gall bladder upon adjacent structures and also from ulceration with passage of calculi into the intestinal tract. When there is a calculus in the common duct the gall bladder may be so small that it cannot be palpated. In a certain percentage of cases gall stones are seen by means of the roentgen-ray and a larger number by cholecystography. All these measures are available to us and are of importance in relation to diagnosis and prognosis. That is why I stated at the outset we ought to be glad we are living in the present age when we have so many things to aid us in making our clinical diagnoses.

Charles G. Lucas: The subject of jaundice is one in which we are all interested and Dr. Frank has covered it very thoroughly. I agree with Dr. J. A. Flexner and the other speakers that the icteric index and Van den Bergh tests have given us a great deal of valuable diagnostic information.

I would like to ask Dr. Frank to tell us what is the highest icteric index he has ever seen. The reason I ask that question is because during October, 1927, I saw a woman aged 43 years who had been intensely jaundiced since early in August, but had only slight tenderness just to the right of the ensiform cartilage. Her urine contained a large amount of bilirubin. I tried four different times to introduce a duodenal tube and failed each time, so was never able to institute drainage. Her icteric index showed 150. She was sent to the hospital and observed until death occurred. A week before she died she gradually became unable to swallow. Fortunately an autopsy was permitted. We found a mass the size of an orange to the left of the ensiform. She also had two large calculi in the gall bladder. Her history had hardly been suggestive of gall stones. She had malignant disease of the gall bladder and also of the pancreas.

Some time ago I saw a lady 74 years old who had an icteric index of 75. There was a small mass in the liver area which I thought was the gall bladder. She had never complained of any pain, nor had the other woman just mentioned. She had marked jaundice and was sent to the hospital for further observation. The duodenal tube was not used. I told the family I thought she had malignant disease of the gall bladder and gave an unfavorable prognosis. Operation was declined. Later her color improved and the mass was reduced in size. I then changed my diagnosis to an inflammatory lesion of the head of the pancreas. I have been very much impressed with the importance of the tests mentioned by Dr. Frank in the early diagnosis of jaundice.

I have been very much interested in the icteric index and believe it is of great value.

Fred G. Speidel: Dr. Frank's excellent paper has covered the subject so thoroughly that there is little left to be said. However, there is one point I would like to mention that has interested me and has been rather puzzling. It will be recalled that it is sometimes necessary in infections to differentiate between the pneumococcus and the streptococcus, and one of the tests for that purpose which is fairly reliable is the fact that the pneumococcus is soluble in bile, whereas the streptococcus is not. The facts that the pneumococcus is soluble in bile and that bile in rather higher dilution inhibits the action of the pneumococcus, lead one to wonder how an individual with a high degree of icterus can develop pneumococcus infection, yet that is certainly true. I recall one icteric patient who had cancer of the head of the pancreas upon whom Dr. Frank performed an exploratory operation. The patient finally died from typical lobar pneumonia. We know that an individual who has neumonia with icterus has a very bad prognosis. One would think if the presence of bile in the blood inhibited the action of the pneumococcus in the test tube, in the human organism it would prevent or relieve pneumonia. We would also think that the bile salts would be a cure for pneumonia, but it seems to be quite the contrary.

I merely mention this as an additional point worthy of discussion in connection with the general question of icterus. Needless to say I have enjoyed the paper very much.

THE UNBALANCED ENDOCRINES.*

By G. J. Hermann, Newport.

Very significant is the influence of the internal secretions or the ductless glandular system upon the psychical and mental functions of man. The subject has been dealt with often in recent years, by the European investigators. I refer here to the alteration of character that is almost always associated with the unbalancing of the endocrines, for instance in exophthalmic goiter, we see the physical irritability, the inclination to irascibility, and their unsuitable mental attitude. In thyroidema, the apathy and lack of interest: In hypophyseal disfunction, the characteristic quiet mental attitude is present, while in Addison's disease the patient suffers from that terrific muscular weakness and a feeling of mental want; and finally we see the profound influence that the ripening of the sexual gland at the time of puberty or the loss of function of the sexual gland in castrated exercise upon the psychic.

The relation of the ductless glandular system to the vegetative system, are not only important for the pathogenesis of the ductless glandular system diseases, but they possess also a great practical interest, through the fact that in many endocrine diseases they simplify the solution of the individual symptoms, and complexes in many respects.

The endocrine system influences the excetability of the sympathetic nervous system, by the hormones that it gives off to the circulation. At least this has been ascertained with certainity with regard to adrenalin and is in all probability true of the other ductless glandular hormones. The knowledge of the internal secretion took its origin from the sexual glands. Brown Seguard, the famous French physiologist, injected himself with testicular extract and believed that thereby he could obtain a sort of rejuvenation of the organism. The ductless gland which the general practitioner sees and recognizes most often in a state of disfunction is the thyroid gland. The thyroid gland is of unusual interest to clinical medicine, by reason of its marked and striking effects upon the development and function of every tissue and organ of the body.

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*Read before the Campbell-Kenton Medical Society.

These effects are almost wholly due to the remarkable stimulation to metabolism, which the thyroid secretion exerts, an action accomplished by the liberation of an internal secretion into the lymph and blood. Thus the thyroid simply increases existing cell metabolism without adding any difference in kind of action.

The active chemical principle of the thyroid gland has been isolated and is called thyroxin. The thyroid is indispensable for the normal growth and development of the organism. In cases of atrophy of the gland which occurs in cretinism, the failure of physical and mental growth is very apparent, and the whole process of growth and development comes to a standstill. These results are also produced in animal experimentation. The result of thyroid feeding and the administration of thyroid extract to such cases is one of the most astounding in medicine. Growth is accelerated, the mental development proceeds and if instituted early, development and growth of the organism may proceed approximately along normal lines.

The thyroid is inter-related with other endocrine organs in the regulation of the process of menstruation, and during pregnancy the thyroid hypertrophies to compensate to the added functional requirement and some enlargement of the time of menstrual period and at puberty are not uncommon.

The thyroid seems to be more fundamentally related to the female organism and sex apparatus than to the male. All the endocrine glands may be the subject of unbalancing in two directions. Ist. Excessive secretions, called hypo secretions. Excessive secretions of the thyroid or hyper-thyroidism arises as a result of poor hygiene, lack of iodine in food, air or water, excessive demands of the body for thyroid hormone, and last but not least, infection and focal infection. The increased secretion may be either an excess or normal hormone or a toxic imperfectly formed hormone.

The symptoms of hyperthyroidism are tachycardia, lowered blood pressure, increased basal metabolism, glycosuria, sweats, tremor, diarrhoea, and psychic agitations. These symptoms are frequently found associated with marked exophthalmos and goiter and the condition is then described as exophthalmic goiter or Graves' disease. Goiter is the expression of an effort on the part of the thyroid to maintain a normal quantity of thyroid, hormone, and may result from localized trauma of any kind, nervous toxic or chemical, which impairs the functional activity of the gland in the production of its harmones. It may, therefore, be associated as a part of a general hypothyroidism.

The first changes in goiter are probably hyperplastic in which the epithelium proliferate to meet the needs of a hypothyroid condition, or a deficiency of iodine or to compensate for an imperfectly formed secretion. When a normal condition and normal requirements are again established there is a reversion to the colloid type. Goiter may be colloid, adenomatous, interstital or degenerative, all but the colloid are usually toxic and may sooner or later require surgical interference. In simple goiter without toxic symptoms thyroid extract or small doses of iodine are effective. Now let us go to the other extreme or disfunction of the thyroid gland and here we have what is known as hypothyroidism.

Marked hypothyroidism in infants and the young is called cretinism and in adults myxodema. Minor degrees of hypothyroidism are extremely common in children and adults . If the condition has existed since childhood the individual will probably be small, poorly developed physically, and of low vitality. The sign of hypothyroidism in children particularly common are constipation, closed fontanels, mental dullness and lack of normal incentive and application in play, delayed dentition, and retained irregular teeth, deficient muscular development, disinclination to physical effort, enlarged tonsils, adenoids, impairment of hearing, pastry infiltrated skin, puffy cheeks, thick lips, scanty dry and brittle hair, the thinning out of the outer third of the eyebrows. The mentality shows all grades of defects from the idiocy of the cretin to stupidity and backwardness. These conditions may be evident in school work or be strikingly shown by various mental tests. Next, let us take a look at the adrenal glands. These glands are situated above each kidney and are composed of two definite, clearly defined parts. The outer portion called the cortex, and the inner portion called the medulla. Their functions are entirely separate and distinct. The cortex which is the part indispensable to life, exercises an important influence on the growth and development of the sexual organs. There is some evidence of a detoxicating function of this part of the gland. It is closely related in function with the hypophysis, gomads and thyroid. The adrenal medullary liberated an internal secretion, epinephrine, the chemical structure and pharmacology of which is well known. Adrenaline has been shown experimentally to increase the consumption of oxygen in animals, to increase the absorption of oxygen and oxy-haemoglobin. The latter effect probably takes place in the blood passing through the lungs, thereby constituting an important factor in respiration.

The emergency theory of the adrenaline was first prepared by Prof. Cannon of Harvard, who regards the epinephrin productions as an emergency mechanism for augmentating the existing forces and functions of the animal organism in time of stress. The primary nervous stimulus causing the physiological changes necessary for assembling the animal resources are furthered and continued by the secondary liberation of adrenaline, which accentuate the action of the vegetative nervous system, in putting the organism in a condition of quick reaction and makes possible a quick expenditure of energy to meet the needs of the environment. The adrenaline gland has been designated by some investigators as the gland of fight and flight. A large cortex implies a combative disposition and a thin cortex, a submissive nature. We shall just mention Addison's disease here as being due to a slow degeneration of this gland and insufficient adrenaline secretion. You all know the classical symptoms of this disease, the characteristic symptoms are great asthenia and bronzing of the skin. The clinical types of the adrenaline medullary unbalancing can also be divided into the hyper and hypofunction. When the gland is over active we are liable to find arteriosclerosis, vascular hypertension. Associated sclerotic nephritis and the heightened activity of the sympathetic nervous system. When the gland is underactive you find pigmentation of skin and mucous membranes, asthenia and muscular inefficiency. Vascular hypotension, under development of sex organs and hypoglycemia.

The hyperfunction of the cortex creates sexual precocity, increased growth of hair and secondary sex character. The lack of function is associated with a lack of sexual development. Adrenaline may be given either hypodermically or orally, the average dose is min (5), of a 1:1000 sol. hypodermically or 15 min. orally. It is especially useful in asthma and low blood pressure. It has been demonstrated by Cannon and his co-workers that the adrenaline secretion is stimulated by pain, excitement and anxiety. He also demonstrated the adrenaline had been injected into the blood stream. Adrenalin also relieves and alleviates fatigued muscle. Upon the basis of these findings it may be presumed that there is an increased secretion of adrenalin during labor. It would increase the tone of the uterus also the force of the contraction of the abdominal muscle, and decrease the coagulation time of the blood during and after labor. The pituitary gland is generally regarded as an endocrine organ. The administration of both the anterior and posterior parts of this organ is attended by constant and unmistakable results in experimental biology. The anterior part is of epithelial origin derived from the ectoderm. The posterior part is a nervous structure and arises from the floor of the third ventricle. The anterior part is generally believed to be indispensable to life. It influences in a remarkable degree the whole process of growth and development particularly of the skeleton and sex organs. The functions of the posterior lobes are not so well understood, although it furnishes a substance which an extraction and injection into animals produce a number of marked pharmacological effects. It is the extract of the posterior lobe which is given hypodermatically and is used chiefly in obstetric paretice. If these things be true of what little we know about the endocrines, then is it not reasonable to deduce that man's mental, emotional and physical constitution is the result of the correlation of his endocrine organs?

TREATMENT OF FRACTURES.*

By James A. Davis, M. D., Covington.

There is no subject of so much importance to the medical and surgical profession as the treatment of fractures. Fractures seldom kill, unless they are compound and infected. They cripple, incapacitate, and deform. It took a World war to teach surgeons how to treat fractures by making a specialty of them; giving them their entire attention, bringing them into one place, and the value of the Thomas brace with its modifications. Now that the war is over, we are drifting back into the condition that existed before the war. There is not enough fractures for any man to make a specialty of them and give them his undivided attenion, with the result that the patient suffers because of it. Each man does the best he can with the result that more damage suits arise from faulty treatment of fractures than from any one cause.

Statistics will give us any thing we may ask for. Hitzrot of New York in 96 cases of fracture of the femur treated nonoperative, had 4 cases of perfect functional results, and from 5% to 90% disability in 92 cases. These figures were secured by an insurance company. Sherman, of Pittsburgh, reported 50 cases of fracture of the femur operated on with no permanent disability, and only one infection and that recovered. These results were secured by perfect team work and a perfectly equipped modern hospital. Between these two statistics you can find any kind of record you may look for.

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*Read before the Campbell-Kenton Medical Society.

There are two methods of treating fractures:

1. The nonoperative or the use of traction and suspension.
2. The operative.

In the nonoperative we may safely put Colles fracture and fracture of the clavicle.

In using traction and suspension, immediate reduction is not necessary as the treatment is supposed to accomplish this result in from a few hours to several days. No anestetic is required. Morphine is used to keep patient comfortable if pain is severe. The limb is in full view all the time and there are no open wounds, unless a compound fracture exists, and this can be treated daily, if necessary, with the traction and suspension on. The circulation of the limb is not impaired as no tight bandages are necessary. Traction and suspension are especially of use in fractures of the long bones of the limbs. Sufficient traction should be used to secure reduction within a reasonable time, from a few hours to 3 or 4 days, and then only enough to hold in place. The usual mistake is made of not using enough traction and waiting several days to reduce, and failure awaits you. X-ray should be used in all cases of fracture and, if possible, a portable roentgenographic apparatus for bedside examination, to make sure you have got good results. There is a recognized legal liability for failure to use x-ray in fractures as an aid to diagnosis and treatment, although it adds to the responsibility of the surgeon.

If the skin on which traction is made is washed well with bichloride solution and thoroughly dried before adhesive plaster is applied, the plaster will remain on for a long time and not become irritating. Muslin or gauze can be glued on with ambroid and will not irritate or slip. Ice tongs as advocated by the late Dr. Ransohoff in fractures of the femur, and the use of steel pins transfixing the bone on which traction is made can be used and will give good results, and will only require about one-half the weight in traction, but it opens up an avenue for infection. The non-penetrating type of tongs are now used. The use of an upright fastened to each bed post with a transverse bar at the head and foot, and an adjustable longitudinal bar connecting them, will give you all that is needed in fastening pulleys and making traction and suspension in any direction desired. If a Thomas brace with foot plate or Pierson hinged leg piece is used, you can get traction and suspension in almost any direction in the leg. In the arm, Murray's modification of the Thomas splint will be found sufficient. In case traction and suspension fails to secure a reduction of a fracture on account of muscle intervention or some complication open reduction should be resorted to.

Simplicity of means and simplicity of apparatus will prove more efficient than the more elaborate methods.

We must remember that the great bulk of fractures are not treated in perfectly equipped modern hospitals, perfect team work and the avoidance of infection, and must of necessity be dealt with in the homes and cottages of the patient; and in these cases, traction and suspension and the use of the Thomas brace with its modifications is almost imperative.

OPERATIVE METHODS

It is said that from 2% to 3% of all cases require operation. Auto and aeroplane accidents may increase these percentages as the bones are driven into the soft parts and are difficult to reduce.

The indications for operation are:

1. A fracture where anatomical apposition cannot be secured.
2. Fracture of the patella with separation of the fragments.
3. Fracture of the olecranon with separation of the fragments.
4. Most compound fractures.
5. Non-union of the fragments.
6. Mal-union or union with bad results.

Operations for fracture calls for the highest surgical skill. Bone must be treated with as much gentleness and carefulness as you would give to the abdominal or other organs. Bone is a living tissue and must be treated as such and handled with extreme care and tenderness if you wish good results. Murphy never touched the bone with his gloved hand, and said he never had an infection, but the farther he got away from it, the nearer he was to it. The less the function of the bone is interfered with, the quicker the bone will heal. If you can secure fixation of the fragments without motion, the earlier you can manipulate the neighboring joints preventing stiffness and loss of function in that joint. Anatomical perfection means a nearer approach to functional perfection. In the hands of a skillful surgeon, team work in his assistants, and a modern hospital, operations can be performed almost entirely devoid of risk. If a fracture can be reduced and held in a good position, don't use any foreign material. If foreign material is used, the use of bone screws, bone transplantation, and ox-bone surgery, do not have to be removed. Always tell your patient that the use of wire, Lane's plates, Parham bands, screws, nails, and all other foreign material must be removed at another operation, and it is better that the same operator do the work, unless you are looking for trouble.

Fractures of the skull are in a class by themselves. Some surgeons operate on all cases. I do not advocate this system. I believe the symptoms and extent of injury as shown by the x-ray should govern whether we operate or not.

TREATMENT OF SURGICAL DIABETIC CASES.*

By E. W. DEMAREE, M. D., Ashland.

The surgeon always leads a life of ease, comfort and tranquility of mind. He is never assailed by doubt. All of his cases respond readily to treatment and he is never plagued by the incurabe patient. He is always of the happy-go-lucky type. He sees the patient for the first time in consultation at eight o'clock, operates at nine o'clock, collects his fee at ten o'clock and promptly forgets the case and goes home to a quiet night's rest. This is, however, only a dream and we must stop long enough to consider only one of the complicating factors that may cast a shadow on an otherwise peaceful existence.

In order to better outline the treatment of diabetes mellitus in those patients that come to the attention of the surgeon. I have made the following classification:

1. Elective cases or those in which surgery is a matter of choice. Under this heading we can place those cases in which the surgical condition can have no bearing on the diabetes, and those cases in which the sugar tolerance is affected.

II. Emergency cases or those that require surgical intervention without regard to any existing metabolic disorders. Under this heading we can place those cases in which there is a preoperative diagnosis of diabetes, either a known diabetic case or one accidentally discovered in a routine urine examination, and those cases in which no symptoms of diabetes were found until after the operation. This might be due to the urgency of the case, lack of proper examination, or exacerbation of an incipient case brought about by an increased toxemia.

At the present time the treatment of diabetes has reached such a degree of perfection that almost no case is so severe as to render surgery out of the question. The treatment of the medical diabetic case has been so standardized that the details of dietary treatment with calculation of carbohydrate, protein and fat ratios need not be taken up at this time. Our aim throughout must be to eliminate the glycosuria, prevent acidosis, and keep the blood sugar within normal limits at all times. We will endeavor merely to outline briefly the changes in technic which must be observed in this group of cases.

In the elective surgical cases the severity of the diabetes is seldom marked, as the symptoms of the surgical condition are predominating and bring the patient to the surgeon for advice. In these cases any operative procedure is not justified until the pancreatic condition has been carefully studied, the sugar tolerance of the patient determined, the glycosuria and acidosis controlled, and the blood sugar maintained at a relatively low level. After prolonged treatment the sugar tolerance can frequently be greatly increased. This should be carried to the highest level before surgery is instituted. Even at this point the personal opinion of the surgeon must play an important part. After the diabetes is under control, the condition of the patient and the severity of his case must be weighed against the severity of the operation and the benefit to be derived from it.

There is less choice in the matter if some condition is present which might aggravate the course of the diabetes. If such a condition is present it should be attended to as soon as the condition of the patient permits. Under such conditions we might include all sites of focal infection, such as: Carious teeth, chronic infected tonsils, chronic sinusitis, appendicitis, cholecystitis and the like. Cholelithiasis may play an important part in obstructing the duct of Wirsung and thus promoting pancreatic degeneration. Other conditions such as boils, carbuncles and the like should require no more incision under proper diabetic control than the average non-diabetic case. Frequently many of these conditions are so greatly benefited by a rigorous diabetic control that surgical intervention is reduced or occasionally entirely eliminate.

In treating these cases the usual diabetic routine is followed with modifications to suit the individual case. This consists essentially of the following procedure, which seems to be that most widely adopted. The treatment should be begun with an absolute fast which should continue for twentyfour hours after the disappearance of the last trace of glycosuria. In very obese patients it may be necessary, in order to prevent too severe acidosis, to withdraw food slowly, beginning by omission of fat, then of protein and finally of carbohydrate. This is the modification proposed by Joslin. Except in obese patients the tendency of the fasting is to reduce the diabetic acidosis.

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*Read before the Boyd County Medical Society.

Twenty-four hours after the urine has become sugar free, test diets are begun and accompanied by quantitative sugar determinations of twenty-four hour urine specimens and daily blood sugar determinations. These test diets are continued until the sugar tolerance of the individual is determined at which time a maintenance diet is prepared which may or may not be accompanied by the administration of insulin, depending on the individual case. When a maintenance diet has been determined which eliminates glycosuria and ketonuria and keeps the blood sugar below eleven hundredths percent during fasting and fourteen hundredths per cent during digestion, the patient may be considered properly prepared for the operation. For two or three days before the operation and for several days following the operation it is advisable to omit the fats in the diet to reduce the tendency to an increasing acidosis. Following the operation any emergencies that arise may be treated as described under another heading.

In those known diabetic cases in which an emergency surgical condition is present, and in the presence of glycosuria without acidosis, a small amount of insulin may be given. The dose should be determined according to the degree of glycosuria, or better still, to the degree of hyperglycemia if it is possible to make a sugar determination before the operation. In the presence of ketonuria, this should be augmented by glucose given by mouth or parenterally. Following the operation the usual diabetic treatment may be carried out with the resumption of the diet except in those cases in which the acidosis is marked or on the increase, and in these the glucose-insulin treatment must be instituted. The use of alkali in attempting to prevent or relieve acidosis is optional. If an accurate estimate of acidosis is to be kept by determinations of the CO_2 combining power of the bloodplasma, it is inadvisable to administer the alkali. It has been conclusively shown that enough alkali may be given to keep the urine alkaline in reaction, and the blood CO_2 above the danger point, and still have the patient die in coma due to the accumulation of acetone bodies in the blood. In empirical treatment the use of alkali is well justified. but in scientific control of the case the danger of masking the true condition is so great as to offset any possible advantage.

If it is possible to postpone the operation for a few days, the best preparation would be to keep the patient on a restricted diet, eliminating as much fat as possible and giving as much carbohydrate as the patient will utilize, and if possible enough protein to prevent wasting of the body tissues and its accompanying loss of strength. If the sugar tolerance is low the diet may be increased with enough insulin administered to control the glycosuria. In this manner any existing acidosis may usually be overcome, or the accumulation of sufficient acetone bodies in the blood to cause a fatal coma may be forestalled.

In the cases which are first known to be diabetic after the operation, the treatment may of necessity be of the most radical nature. The first symptom to arouse suspicion may be presence of coma. Under such a condition a 10% solution of glucose in a normal saline solution should be given intravenously to guarantee its utilization. In less severe cases the glucose solution and insulin may be given subcutaneously. This would apply also to those cases in which involvement of the gastro-intestinal tract would eliminate dietary control. In other cases the glucose might be given per rectum. However, the greater part of those cases in which no food is taken by mouth would be controlled by the fasting. In others in which food is taken in limited amounts, it would be possible to supply the cahbohydrate needs in this way, taking up protein and finally fats as the diet is increased. If the surgical condition of the patient does not require dietary limitation he may be treated in the usual medical manner.

Unfortunately, there is no hard and fast rule to govern the treatment of the diabetic case coming to the attention of the surgeon. Every case must be treated individually. Each diabetic case properly controlled is as safe a risk as the average non-diabetic case. Every diabetic case not properly controlled is a constant source of danger, and it is only by the closest observation that we can eliminate to a large degree the avoidable accident occuring to this group during surgical care. The greatest cooperation between the internist and the surgeon is necessary for a happy result. And in the ability of the surgeon to see beyond the point of the knife, lies much of the future of the treatment of the surgical diabetic case.

END RESULTS OF TEN YEARS SANATORIUM TREATMENT.*

By Edward J. Murray, M. D., Julius Marks Sanatorium, Lexington.

The Tuberculosis Sanatorium for Fayette County, Kentucky, was opened August 27, 1917, with accommodations for fifty-four patients (adults and children). A separate pavilion was provided for colored adults. The institution was first known as the ‘‘Blue Grass Sanatorium’’ but in April, 1924, the name was changed to ‘‘Julius Marks Sanatorium.’’

The sanatorium buildings comprise a superintendent's residence, a children's building, a service building, employees residence and two open pavilions. A new ‘‘central unit building’’ containing administrative, medical, and culinary departments and rooms for thirty-six patients will be opened early in 1928. This will increase the capacity of the sanatorium to approximately one hundred beds.

Though the present buildings were constructed primarily for early cases of pulmonary tuberculosis we have admitted advanced cases and given them the best care and attention possible with the available facilities.

It has been said that the value of a sanatorium to the community is in proportion to the number of patients living and well five years after their discharge.

September 1, 1927, the sanatorium had been in operation for ten years, and it was thought best to ‘‘check up’’ our results and see just how much we have accomplished. We have, therefore, to the best of our ability, tried to ascertain the present conditions of all patients discharged from the sanatorium these past ten years. That our figures may be easier understood we will present our results in the form of charts.

Thirteen hundred and five patients were discharged up to and including August 27, 1927. Chart No. 1 shows the present condition of these discharged patients.

CHART NO. 1.

	Number	Percent
Living and well	683	52+
Living but not well	87	6+
Unable to locate	211	16+
Dead	324	24+
Total	1305	100%

It is unfortunate that we have so many patients listed as ‘‘unable to locate.’’ A closer analysis of these cases shows that many were young women who were reported as married now and had moved away. Most of the others came from what could be called the ‘‘slum district’’ or were roving tenant farmers who moved annually. We can with safety state that over half this number are living and well thus increasing the percentage of ‘‘living and well’’ cases to over 60%.

By ‘‘living and well’’ we mean working a full day at their regular work, with signs of healed lesions, and with no symptoms of any activity.

By ‘‘living but not well,’’ we mean those who are doing no work but on the other hand are incapacitated by illness.

The terms ‘‘unable to locate’’ and ‘‘dead’’ are self-explanatory.

Classifying these thirteen hundred and five patients according to their pulmonary condition upon admission we have the following figures:

CHART NO. 2.
Admission

	Number	Percent
Hilum TB.	76	5+
Minimal TB.	344	26+
Mod. Adv. TB.	607	46+
Far Adv. TB.	200	15+
No Clin. TB.	40	3+
Unclassified	38	2+
Total	1305	100%

A study of this chart will show that less than one-third of these patients were ‘‘early cases.’’ The ‘‘Hilum Tuberculosis’’ patients were all children. Those classified as ‘‘no clinical tuberculosis’’ were patients who after a period of observation and study were diagnosed as having no signs or symptoms of active tuberculosis. Under the headings ‘‘unclassified’’ we listed those who left before thorough examination was made, or where a diagnosis could not be made. Diagnosis of active tuberculosis in children is difficult and it is exceedingly probable that we have listed cases with no tuberculosis as ‘‘hilum tuberculosis.’’ The same holds true in the cases of those listed as ‘‘no clinical tuberculosis’’ and as ‘‘unclassified.’’ Carefully analyzing the cases listed under these headings we came to the conclusion that the mistakes in one column balanced those in the other columns.

Considering these discharged patients according to their condition upon discharge we note these results:

CHART NO. 3.
Discharge

	Number	Percent
Arrested	58	4+
Ap. Arrested	85	6+
Quiescent	176	13+
Improved	607	46+
Unimproved	341	26+
Unclassified	38	2+
Total	1305	100%

It is startling to note here that less than 25% remained in the sanatorium to become quiescent.

Tuberculosis authorities have laid great stress upon early diagnosis; the earlier the diagnosis, other things being equal, the better the chance for ultimate recovery. We have, therefore, classified all these discharges according to their pulmonary condition upon admission in this next chart.

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*Read before the Fayette County Medical Society.

CHART NO. 4

	Living and Well No.	Living and Well Percent	Living but not Well No.	Living but not Well Percent	Unable to Locate No.	Unable to Locate Percent	Dead No.	Dead Percent
Hilum TB.	68	9+	4	4+	4	1+	0	0
Minimal TB.	254	37+	8	9+	71	33+	11	3+
Mod. Adv. TB.	303	44+	51	58+	106	50+	147	45+
Far Adv. TB.	18	2+	18	20+	12	5+	152	46+
No. Clin. TB.	22	3+	3	3+	11	5+	4	1+
Unclassified	18	2+	3	3+	7	3+	10	3+
Total	683	100%	87	100	211	100	324	100

These tables show conclusively that the earlier the diagnosis the surer the cure. Only 2% of the far advanced cases are alive while nearly 50% are dead, and that over 46% of the early cases are alive and less than 4% are dead. Of the moderately advanced cases, those midway between early and late cases, approimately 50% are living and same per cent are dead.

To secure the full cooperation of your patient and have him take treatment for a prolonged period of time is often impossible. We have learned that the cause of most relapses in tuberculosis is due generally to insufficient treatment. To bring this to your attention we present our tables based upon the condition of these patients upon discharge.

CHART NO. 5

	Living and Well No.	Living and Well Percent	Living but not Well No.	Living but not Well Percent	Unable to Locate No.	Unable to Locate Percent	Dead No.	Dead Percent
Arrested	52	9+	2	2+	3	1+	1	3-10% 1%
App. Arrested	75	10+	1	1+	6	2+	3	9-10% 1%
Quiescent	140	20+	1	1+	29	13+	6	6+
Improved	316	46+	58	66+	110	52+	123	37+
Unimproved	82	12+	22	25+	56	26+	181	55+
Unclassified	18	2+	3	3+	7	3+	10	3+
Total	683	100%	87	100%	211	100+	324	100

Reviewing these columns you will note that of those leaving before any improvement was shown over 55% are dead and only about 12% are living and well. The reverse is true in case of those remaining long enough to secure quiescence. We must, however, bear in mind that many of these patients entered with their disease so advanced that no improvement was possible. On the other hand a careful check of the records show that over 50% of these now charted as "dead" had a chance to become quiescent but refused to remain under treatment.

Examining our records a second time to see how the dictum "the earlier the diagnosis the surer the cure" held true we ascertain these facts:

CHART N. 6

	Hilum TB No.	Hilum TB Percent	Minimal TB No.	Minimal TB Percent	Mod. Advanced TB No.	Mod. Advanced TB Percent	Far Advanced TB No.	Far Advanced TB Percent	Fε No Clinic TB No.	Fε No Clinic TB Percent	Unclassified No.	Unclassified Percent
Living and Well	68	89+	254	73+	303	49+	18	9	22	55	18	47+
Living But Not Well	4	5+	8	2+	51	8+	18	9	3	7+	3	7+
Unable to Locate	4	5+	71	20+	106	17+	12	6	11	27+	7	18+
Dead	0	0	11	3+	147	24	152	76	4	10	10	26
Total	76	100%	344	100%	607	100%	200	100%	40	100	38	100

Comparing this chart with chart No. 4 we note that while only 9% of our living patients were classed as Hilum Tuberculosis and only 37% were minimal cases, on the other hand of all the cases of Hilum Tuberculosis admitted nearly 90% are living, and of the Minimal cases 74% are alive and well. While 46% of all deaths are among Far Advanced Cases, this table shows that of those patients entering as Far Advanced Cases 76% are dead.

To know how our "Arrested" and "Quiescent" patients have progressed since leaving the sanatorium we have tabulated our findings under these headings.

CHART NO. 7

	Arrested No.	Arrested Percent	App. Arrested No.	App. Arrested Percent	Qiuescent No.	Qiuescent Percent	Improved No.	Improved Percent	Unimproved No.	Unimproved Percent	Unclassified No.	Unclassified Percent
Living and Well	52	89+	75	88+	140	79+	316	52+	82	24+	18	47+
Living But Not Well	2	3+	1	1+	1	½ of 1%	58	9+	22	6+	3	7+
Unable to Locate	3	5+	6	7+	29	16+	110	18+	56	16+	7	18+
Dead	1	1+	3	3+	6	3+	123	20+	181	52+	10	26+
Total	58	100%	85	100%	176	100%	607	100%	341	100	38	100

Comparing this chart with chart No. 5 we will note that while only 38% of all patients now well remained long enough to secure quiescence, and we will also see that the patients discharged as "arrested" 89%, 80% of "apparently arrested," and 79% of those classified as "Quiescent" are living and well. Less than 8% of these patients are dead. The reverse is true of those leaving before quiescence. Over 72% of the deaths were among those who did not remain long enough to secure a quiescent condition.

All our patients who are dead did not die of tuberculosis. We have classified our deaths under three headings. Those who died of tuberculosis, those dying from diseases other than tuberculosis, and those who died but we were unable to secure exact cause of death.

We thought it would be of interest to tabulate these deaths according to the condition of the patients on admission and we have classified theme in this chart.

CHART NO. 8

DEATHS	Died TB		Died Not TB		Died Unknown	
	No.	%	No.	%	No.	%
Hilum TB	0	0	0	0	0	0
Minimal TB	3	1+	3	10+	5	11+
Mod. Adv. TB	102	40+	18	64+	27	60+
Far Adv. TB	140	55+	4	14+	8	17+
No Clinical TB	0	0	2	7+	2	4+
Unclassified	6	2+	1	3+	3	6+
Totals	251	100%	28	100%	45	100

These figures show that about 78% of all deaths were due to tuberculosis. No doubt many others died from tuberculosis whom we have classified as "unknown." The condition on admission and discharge of these unknown deaths leads us to estimate the true death rate from tuberculosis as nearer 90% than the 78% above mentioned. Of those who died of tuberculosis over 95% were advanced cases upon admission . The pulmonary condition of those advanced patients dying from other diseases hastened their deaths.

Considering these deaths according to the condition of the patient upon discharge our tables tally with what has been presented.

CHART NO. 9

DEATHS	Died TB		Died Not TB		Died Unknown	
	No.	%	No.	%	No.	%
Arrested	0	0	0	0	1	2+
		2-5%				
App. Arrested	1	1%	2	7+	0	0
		4-5%				
Quiescent	2	1%	2	7+	2	4+
Improved	87	34+	13	46+	23	51+
Unimproved	155	61+	10	35+	16	35+
Unclassified	6	2+	1	3+	3	6+
Total	251	100%	28	100%	45	100

95% of those who died of tuberculosis did not remain long enough to become quiescent. Over 80% of those who died of other diseases than tuberculosis left too soon.

These last two charts are remarkable in that they show only 1% of early cases on admission had died of tuberculosis and less than 2% of all patients who remained long enough to secure a quiescence of their pulmonary trouble died of tuberculosis. I cannot explain these figures except to make note that probably the period since their discharge is too short to make final deductions.

CONCLUSIONS.

In conclusion I wish to again bring to your attention the three cardinal points in the treatment of pulmonary tuberculosis: Early diagnosis—proper treatment—and continue treatment until arrested if possible.

Our records show that approximately 60% of all patients discharged these past ten years are living and well. This seems too good to be true but our records show this result. You must bear in mind however that we admitted as few advanced cases as we could and that among our children we have probably listed some suspicious cases as active.

When the sanatorium opened the death rate from tuberculosis in Fayette County was 280 per 100,000; last year it was 183 per 100,000. Considering the figures just presented I think we can say truthfully that the Julius Marks Sanatorium has been productive of much good these past ten years, and we look forward to a new era of usefulness when we open our new building next year.

MEDICAL TRADITIONS OF THE UNIVERSITY OF LOUISVILLE. WITH THREE BIOGRAPHICAL SKETCHES.*

By R. Glenn Spurling, Louisville.

The original intention in the preparation of this paper was to review in some detail the incidents connected with the foundation and the early years of our medical school. The more I read, the more convinced I have become that such a course would be about as logical as to start a play with the second ace or to write the biography of a man without first studying the influence of his ancestors and early environment on his life. So, in reviewing the history of the Medical Department of the University of Louisville, we would be starting in the middle of our story if we failed to give the main details in the life of the foster parent school, Transylvania University.

It is even difficult to start with Transylvania, for there is so much fascinating medical history connected with the early days of Kentucky that one is tempted to try and give a glimpse of all this period. But such a course would obviously be beyond the scope of this paper and too, you have all perhaps heard Dr. Abel's delightful address on the "History of Medicine in Kentucky," a subject which he has covered in great detail and exactness.

As a foreword, I should like to have you remember that this state, during the period of which we shall speak, was the western frontier of civilization. In fact, Kentucky stands in the same historical limelight to the West, as Massachusetts does to the New England states; both being centers from which civilization spread to their respective sections of the country. In the first quarter of the nineteenth century, traveling was all done by horseback and riverways. For one to journey to the East, it was necessary to travel most of the distance on horseback, requiring about three weeks to reach Philadelphia. Not only were hardships and inconveniences encountered, but Indian warfare was common, and this danger alone was sufficient to keep any but the boldest close to his own settlement. One readily understands then, why schools sprang up rapidly in this western country; for to send a child East for his education was not only tedious and dangerous but far more expensive than the average family could afford. But to begin my story:

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*Read before the Innomate Society.

In 1780, the State of Virginia placed 8,000 acres of land in Central Kentucky aside "for the purpose of a public school or seminary of learning," "Kan-tuckee" being then a little explored part of the state of Virginia. In 1783, when Kentucky became a district of Virginia and had its own General Assembly, a tract of 12,000 acres was set aside for the maintenance of a college to be called "Transylvania Seminary." This college was first permanently located in Lexington in the year 1793. At first the instruction was chiefly theological and philosophical; the governing body being made up of Presbyterians. Early in 1799, the first attempt was made to establish a medical department. The first medical course was given by two distinguished men—Dr. Samuel Brown, Professor of Chemistry, Anatomy, and Surgery, and Dr. Redgely, Professor of Materia Medica, Midwifery and practice of Physic. Both of them were salaried members of the University faculty. Dr. Brown attained a national wide reputation during the ensuing years, because of his ability as a teacher and his pioneer work in vaccination for smallpox. It is stated by several authorities that vaccination at this early date was more widely practiced in Kentucky than it was in the vicinity in England where Jenner lived and worked.

Transylvania was the second medical school to open its doors in the United States; the first being the University of Pennsylvania Medical School. After five years of medical instruction, the school went slowly into decay and was temporarily abandoned. There were no further medical classes held until 1809 when an unsuccessful attempt at re-organization was made . Dr. Benjamin Dudley, then a young practitioner of medicine in Lexington, was perhaps responsible for this attempt. Only a few students attended the opening session, and before the year was out, classes were dismissed. Shortly after this, Dr. Dudley went abroad for a period of five years and studied surgery with the leading teachers in the leading clinics of Europe. He returned to Lexington in 1815, and to him perhaps more than any other, is due the credit of reorganizing the school on a permanent and sound basis. The opening of the session of 1817 found a body of twenty students present. The faculty was composed of the following men:

Dr. Benjamin Dudley, Anatomy and Surgery.

Dr. James Overton, Theory and Practice.

Dr. Daniel Drake, Materia Medica and Medical Biology.

Dr. W. H. Richardson, Obstetrics.

Dr. James Blythe, Chemistry.

The following year Dr. Horace Holley was appointed President of the University. It was due perhaps to his foresight as a medical educator that the school made such rapid strides during the next decade. He brought Dr. Charles Caldwell from Philadelphia to occupy Dr. Drake's chair. Dr. Caldwell had already made a wide reputation as a writer and teacher, and his addition to the faculty was a great boon to the school. He was made Dean of the faculty and spent the ensuing summer vacations lecturing and advertising the school throughout the South. He not only raised the funds, but personally selected, while on a European tour, a library and modern teaching equipment. He brought with him the latest ideas on medical education from the East and apparently his enthusiasm reacted upon both students and faculty, for not only did the enrollment double and triple during the next five years, but the faculty became an active, earnest, teaching unit in harmony with the work and themselves. Dr. Dudley became the outstanding surgeon of the South, and his reputation and skill as a teacher added greatly to the continued success of the enterprise. Dr. Drake was recalled to the faculty as Professor of Materia Medica in 1821. The faculty at this time was a distinguished one, for the names Dudley, Drake, and Caldwell were known throughout the country as being teachers of great merit. The location, in the early days of the school, was particularly advantageous. Lexington was spoken of everywhere as the "Athens of the West" and was without doubt the center of intellectual and cultural thought of this section. Transylvania reached the zenith of her fame, from the point of enrollment, in 1825, when there were 282 students in the Medical School.

In 1835, the enrollment was 260, and to all outward appearances the school was flourishing; but appearances were deceptive, for the faculty had long since decided that the Medical school had filled its period of usefulness.

The slow decline of the school, like its rapid rise, was due greatly to the changing conditions of the country. Shortly after 1812 steamboat navigation on the Ohio river ceased Louisville and Cincinnati to grow rapidly, while Lexington for purely economic reasons, gradually lost its population. Thus from 1814 to 1820, the population decreased from 18,000 to 4,000 people. There were no hospitals, and the vicinity furnished very precarious and inadequate means for anatomical material. "Body snatching" as practiced in those days, being not only the medical students on a 'lark", but an absolute necessity. There are many interesting stories recorded of these escapades. One perhaps will bear repeating because of its dramatic outcome.

An Irishman had been killed in a quarrel and buried. The medical students raided the grave and brought the body to the medical building for study. Drs. Drake, Dudley, and Richardson were holding the postmortem examination. Drake and Dudley disagreed about certain points in the case. Finally a friendly controversy was turned into bitter words, and the outcome was a challenge to mortal combat from Dudley to Drake. The latter promptly refused, but his "hot-headed" friend, Richardson, accepted the challenge in his stead. The duel was fought with pistols, and at the first shot, Richardson was wounded in the inguinal region. A large artery was severed, and he was rapidly bleeding to death. Dudley rushed over, asked permission of his adversary to arrest the hemorrhage, and promptly ligated the bleeding vessel. This incident united the two men in a bond of friendship which was never broken. Also Drake and Richardson remained life-long friends, as attested by the fact that years later when Drake lay seriously ill in Cincinnati, Richardson left his busy practice and attended at his friend's bedside for three weeks.

In 1836, the factulty voted unanimously to attempt to remove the school to Louisville, because of the greater clinical and hospital facilities. However, the people of Lexington and trustees of the University would not countenance such a move, and a "split in the faculty resulted." Drs. Caldwell, Cooke, and Yandell were firm in this resolution to move to Louisville, and at the close of the session of 1836, they resigned. A town meeting of the citizens of Louisville was called in March 1837 at which Dr. Caldwell delivered an inspiring address. The result of the meeting was that the "Medical Institute of Louisville" was founded and endowed by the Mayor and City Council. The grant included a square lot between Eighth and Ninth, and Chestnut and Magazine streets; a medical building to cost $30,000; and a grant of $20,000 for the purchase of a library, apparatus, and an anatomical museum.

The first session of the school was held in the upper rooms of the City workhouse. There were eighty students enrolled. The faculty was composed of the following men:

Dr. Cobb, Anatomy.
Dr. Joshua B. Flint, Surgery.
Dr. Caldwell, Medicine.
Dr. L. P. Yandall, Chemistry.
Dr. Cooke, Theory and Practice.
Dr. Miller, Obstetrics.

The second session found the new medical building completed. During the summer a library and apparatus, essential for teaching had been purchased in Europe. This class numbered 120 students.

The following year, Dr. Daniel Drake was appointed to the chair of Clinical Medicine and one year later, Dr. Samuel D. Cross was made professor of Surgery after Dr. Flint had resigned. The classes continued to grow and flourish in spite of the fact that the tuition fees were higher than in any of the schools of the West. The third session the enrollment reached 205; the fourth 209; and the fifth 268. The largest enrollment was reached during the eighth session when there were 347 students present.

The clinical teaching was all done on the wards of the Marine Hospital until the classes became too large for ward visits. An amphitheatre was erected adjoining the hospital and here the clinical exercises were conducted.

In 1845, during the eighth session of the Medical Institute, the legislature of Kentucky granted a charter for the "University of Louisville." The Medical Institute was merged into the new University plan as the "Medical Department of the University of Louisville." By the provisions of the charter, the Board of Trustees was to be elected by the City Council. The new school continued its period of prosperity, attracting large classes from all parts of the country. At the second session of the Medical Department, following its incorporation in the University, the student body numbered 406.

Perhaps no school in this country ever attained so much fame in such a short time. But like every successful enterprise, there are always those who would make trouble for it. In the beginning, while the school was waging its struggle for existence, the sympathy and good wishes of the people of Louisville were with it, but when prosperity was assured, it began to be urged by some that the professorships were too remunerative. Consequently an effort was made to limit the receipts of the professors. The system of tuition was the same here as prevailed in all the schools of the country: namely, that each professor receive from each student $15 for his course of lectures. The aggregate fees for each student per year amounted to roughly $125. Of this amount, the professors received about $105. Thus each professor received annually from $4,000.00 to $6,000.00 for his course of lectures. Of this amount there were undoubtedly many incidental expenses to be paid for running the department. This measure for limitation of the professors' salaries finally failed but it caused a great deal of unrest among the faculty over a period of several years.

The requirements for the degree of M. D. as listed in the catalogue of 1847 were as follows:

1. The candidate must have attained the age of 21 years.
2. He must have attended two complete courses of lectures, the last of which, at least shall have been in this institution.
3. He must have taken the ticket of the Demonstrator one session, or have been engaged in dissections under a competent teacher; and must have attended one course of clinical instruction in the Louisville Marine Hospital or in some other institution approved by the faculty.
4. Students who have attended a full course of lectures in a respectable Medical School, and physicians who have been engaged for four years or more in respectable practice, after a course of study under a preceptor may be admitted to examination in the school after attendance upon one complete course.
5. Candidates for graduation must produce a thesis on some medical subject composed by themselves.

The duration of each session was four months, January to March inclusive. Many of the students engaged in agricultural pursuits during the spring and summer months, and attended medical school during the winter months only. Some practiced in rural districts during this interim, while others became apprentices to established physicians.

To trace the progress of the Medical School further, would be beyond the scope of this paper. It will suffice here to say that it remained the leading seat of medical learning in the West throughout the nineteenth century. The story of its struggles, the rivalries with newly-formed schools, its ever increasing list of distinguished pupils and teachers, is most fascinating. Its rise to preeminence was remarkably rapid; its period of usefulness and fame was remarkably long; its slow decline and finally its complete reorganization, gives to the school traditions which hold an enviable place in the history of medical education of this country.

For the second part of this paper, I shall review briefly the lives of three physicians who in my opinion brought more prestige to the school, by their endeavor and national fame, than any others. Nor would I detract from the glory of many of their distinguished colleagues by so doing, but to write of them all would require a volume of space.

PART II.

CHARLES CALDWELL. Born May 14, 1772, was the eldest son of an Irish Army officer who immigrated to America about 1765, first settling in the State of Delaware. The family shortly moved to North Carolina, and it was there that Charles was born and reared until the age of twenty. His early development was unusual. While neither his father nor mother were people of letters, yet they apparently decided that this son should have all the opportunities of a classical education that they had missed. From his earliest childhood, the child was taught carefully and intellectually. At the age of twelve years, he was studying Latin and French, and at the age of fourteen years, he was a thorough scholar in the classics.

At the age of twenty, he entered the University of Pensylvania Medical School, then the premier seat of medical learning in the United States. As a medical student he distinguished himself because of his literary talents and original contributions to the medical literature of the day. At that time yellow fever was rampant, and during one of these outbreaks, he volunteered for service in one of the pest houses, and there remained isolated for a period of three months, caring for the sick with no apparent regard for his own danger. He was one of the first to maintain that this scourge was not a contagious disease, although he apparently did not hit upon the real source of the infection. While his work as a medical student was undoubtedly brilliant, yet his manner was so abrupt and offensive to many, that he was involved in many disagreeable squabbles with the faculty of the school.

Following his graduation, he practiced in Philadelphia for several years and was honored by the University of Pennsylvania with the appointment to the chair of Natural History. In 1812, he was appointed to the Board of Health of Philadelphia. Into this new activity he plunged with his usual enthusiasm and skill. His work on quarantine regulations brought him fresh renown. His essay on "Thoughts on Quarantine and other Sanitary Systems" was awarded the Bolyston Prize at

Harvard. The influence exerted by this treatise caused all the then existing quarantine regulations of the sea coast cities to be modified. In private practice, he was never successful. He seemed unable to meet people in a manner that would promote confidence.

In August 1819, he received an invitation to occupy the chair of "Medicine and Chemical Practice" in the New Medical School of Transylvania University. Just what prompted him to accept this offer will probably forever remain a mystery, because it was against the advice of all his friends and colleagues that he even considered the proposition. Perhaps he was dissatisfied with his lot in Philadelphia because a professorship in the Medical School was forever closed to him, when as a student he had become involved in so much trouble with the faculty and Board of Trustees. Again, the adventure of the thing probably appealed to him, for he was a pioneer in spirit and a personality that must lead and not be led. He, himself, offers no explanation for this move. The salary was considerably less than he was making in Philadelphia at the time.

At any rate, the fall of 1820 found him entering upon his new duties at Lexington with his usual enthusiasm. The first session, there were only thirty-seven students enrolled, and everyone including the faculty was discouraged. In that first year, Caldwell lectured extensively throughout the state and was directly responsible for increasing the enrollment next year to 190 students, and also for the securing of a grant of $11,000 from the Kentucky Legislature and citizens of Lexington for the purchase of a library and teaching materials for the school. During his eighteen years at Transylvania, he acted as Dean of the faculty and was unquestionably largely responsible for the great success that attended the school during this period. During the second term of his professorship at Transylvania, he toured Europe for the purpose of selecting the library and equipment for the school. At that time conditions in France were in an upheaval, because of the recent revolution, and many valuable libraries were thrown upon the market. Caldwell's selections were made with remarkable judgment, and the result was that the finest single collection of medical classics in the United States was brought back to Transylvania: the remarkable fact being that the collection which he purchased for considerably less than $10,000 is now probably worth half a million dollars. For this act alone, if this had been his only achievement, Caldwell's name should be handed down to posterity. The story of this famous old library offers one of the most fascinating themes in Kentucky Medical History, and I for one, should like to hear it made the subject of a complete thesis.

The story of Caldwell's migration to Louisville has already been told; it remains only to relate briefly his activities while here. That the University of Louisville Medical School owes its existence and fame in those early days largely to the efforts of Dr. Caldwell. I have been throughly convinced by reading the accounts of his contemporaries. Samuel D. Gross, in his autobiography, speaks of him thus: "Caldwell was the father of the school. He had worked hard in founding it; and he had been a tower of strength in defending it in its early struggles." He was unmistakably a great lecturer and popular with his students. His language and general demeanor were polished and scholarly. Gross says: "Charles Caldwell never had an enemy among his pupils. If they did not love him, they respected and admired him." He was 65 years of age when he came to Louisville, and he continued in active teaching for twelve years. At the age of 77, he was retired from active teaching by the board of directors, much against his will. His few remaining years were embittered because he felt that the school for which he had done so much had forsaken him in the end. He spent the few remaining years of his life in completing his autobiography, a book that did more to detract from his fame than any other single act of his life. He died at the age of 81 years, and lies buried in Cave Hill Cemetery of this city.

The Autobiography is interesting if not admirable. Filled with conceit, egotism, pungent, caustic, sarcastic remarks, and even slander, yet it contains much of truth and lofty ideals. Into every scene and circumstance, he sees himself as the hero. He does not hesitate to say that he is the most learned, and most brilliant man in American medicine of the day. His style is melodramatic in the extreme. The only excuse that I have been able to offer for the book is that it was written in his dotage which had already been embittered by being dismissed from the Medical School faculty. That he was to some degree egotistical, arrogant in meaning and intolerant throughout his lifetime, is a matter of record, but I cannot imagine his having reached the high station in life that he did, had he shown these characteristics to such a marked extent as is exemplified in his Autobiography. Osler speaks of the Autobiography as being the most audacious piece of writing in the English language, and one that is filled with rancor and venom.

The review of his life makes one wonder

what qualities in the man are responsible for endearing his name to posterity. Ability and genius play a part no doubt, but a character without charity, tolerance, and love of his fellow man, is bound to sink into oblivion. These latter attributes, Caldwell sadly lacked, hence his memory remains uncherished, bound beneath a mass of misconducted talents and wasted resources.

I prefer to think of Caldwell as Dr. Robert Peter has written of him:

"It is said of Titian, that when in his old age he took it into his head to *improve* some of his best pictures by retouching them, his judicious pupils mixed his paints with olive oil so they would not dry and could easily be washed off again, thus restraining him from marring or destroying his finest works and fame together. Fortunate would it have been for the venerable Dr. Caldwell, had much of his senile production—written only seven or eigh years before his death—been cancelled by a friendly hand."

Daniel Drake was the second child of Isaac and Elizabeth Drake. He was born October 20, 1785, at Plainfield, N. J. His father was a poor miller and farmer, uneducated but not illiterate. His mother was a pious Quaker woman with merely enough education to read and write. When Daniel was 2½ years of age, his parents departed from New Jersey in company with five other families, to seek their fortunes in the far West. Their objective was the newly opened territory of Kentucky, which they finally reached after a long perilious journey by wagon train over the Allegheny mountains. They located at Mayeslick, Kentucky, a place so named because the land was purchased from a man named Mayes, and the site of the dwellings were placed at a "lick" where the cows came for salt. The settlement was near the town of Washington, Kentucky, which at that time consisted of about a dozen cabins inclosed in a stockade for protection from the Indian attacks so common in those days. There followed for the Drake family years of abject poverty and hardship. Daniel spent the first fifteen years of his life doing everything from farm labor to dispensing whiskey to the neighbors. Perhaps the latter requires a word of explanation. His father traded one of his best horses to a neighbor for one hundred gallons of whiskey. In order to realize his money from the deal, he dispensed the liquor in small amounts to the neighbors, and to Daniel fell the lot of bartender. The whiskey sold at 25 cents per quart. His early education was obtained from such tutorages as the colony afforded, principally from the preacher who came at irregular intervals.

Up to the age of fifteen years, Daniel had accomplished little more than enough knowledge to read and write fairly creditably. The story of those early happenings in his life are fascinatingly told by his posthumous work entitled "Pioneer Life in Kentucky." Not only is this little volume of great interest as an historical epoc of this section, but, like all of Drake's works, it stands as a model for beauty of style and composition. (The copy to which I had access came from the Surgeon General's Library. It was published in 1870, and much to my surprise, I had to cut the pages in about two-thirds of the book!)

At the age of fifteen, he left his home and journeyed to Cincinnati, then a small village of about 1,000 inhabitants, to study medicine with Dr. William Gouforth, the village practitioner, and an old friend of the family. After three and a half years of study, he embarked upon his professional career as an assistant to his teacher. He recounts in his memoirs how he and Dr. Gouforth put from $3 to $6 on their books per day, but he doubted whether more than one-fourth would ever be collected. After a year and a half of practice, he went to the University of Pennsylvania, then the foremost school in this country, to attend a course of medical lectures. After one session in Philadelphia, he returned to his home at Mayeslick and practiced medicine for one year. He then moved to Cincinnati and started again in the practice of medicine, this time alone. His practice grew slowly and for a number of years he had available time for writing on medical and non-medical subjects. In fact, throughout the course of his career, he was a prolific writer and public speaker. Samuel D. Gross said of him, "It is rare that physicians interest themselves in so many public and professional enterprises as he did. His mind was of unlimited application. His own profession, which he served so well and so faithfully, was incapable of restraining it; every now and then it overlapped these boundaries and wandered off into other spheres. His career, in this respect, affords remarkable contrast with that of medical men generally, whose pursuits furnish few incidents of public interest or importance."

In 1816 he was granted an honorary degree of M. D. from the University of Pennsylvania. At this time he had gained quite a reputation from his scientific writings and teaching. In this interim, he had founded the Medical College of Cincinnati. After one year as professor, dissention arose in the teaching staff, and he was asked to resign. This perhaps represents the most bitter experience of his entire career, for he had a regard for this infant school that was highly paternal. In 1817 he was called to Transylvania Medical School as

Professor of Materia Medica. He stayed for one year only, and went back to Cincinnati to enter practice. The following year he went back to Transylvania and there he stayed until 1827. He was called to the Jefferson Medical College in 1830 as Professor of Medicine. Here he only stayed one year, because, as he said, of his homesickness for Cincinnati. He brought back with him from Philadelphia Samuel D. Gross, then a young surgeon of great promise. Both of these men were shortly induced to come to the University of Louisville Medical School, and there they both remained for many years apparently in a happy congenial atmosphere.

In 1849 Drake resigned his chair and returned to the Medical College of Ohio at Cincinnati. This move had always been his most ardent desire, for he always retained the fondest affection for the school, which he founded and from which he was so rudely asked to resign. The following year in consequence of a college broil, he resigned his professorship and returned to Louisville only to stay for two years. His health was failing rapidly, so he retired from active teaching in 1851 and died November 5, 1852, in his home at Cincinnati. One of his colleagues thus writes of him: "Drake loved to teach, and because he loved it, did it well. During thirty-five years he held nine professorships in five different schools. A restlessness innate in his makeup and an habitual discontent with his professional environments made him an itinerate in medicine. The longest continuous professorship, ten years, he held in Louisville." Also Dr. Gross said of him: "It was the same restless feeling that caused his frequent resignations from medical institutions. Had his disposition been more calm and patient, he would have been satisfied to identify himself with one medical school and labor zealously for its permanency and renown. In moving about so frequently, he induced people to believe that he was a quarrelsome man, who could not agree with his colleagues and whose ruling passion was to be a kind of autocrat in every medical faculty with which he was connected. But while his own conduct gave color to such an idea, nothing could have been more untrue."

His most important medical work was "Diseases of the Interior Valley of North America," a most monumental work, the result of thirty years of labor. It is a wonderful encyclopedia of topography, hydrography, climate and meterology, plants and animals, population (including both habitat and occupations) of the Mississippi Valley. There is no work like this in the literature, except perhaps Hippocrates on Air, Water ,and Plants. Garrison in his "History of Medicine" gives the following account of this work: "When Alfred Stille reported on it to the A. M. A. in 1850, Drake was greeted with prolonged and thunderous demonstrations of enthusiasm and applause, such as had seldom been accorded to any physician before. Drake covered his face with his hands and wept like a child."

As a teacher of Medicine, he was preeminent of his day. His students and colleagues and contemporaries attested to the fact. One of the most inspiring addresses that it has been my privilege to read, is his introductory lecture delivered to the new students of the University of Louisville Medical School in 1844. It is filled with scholarly remarks as the following examples will bear testimony:

"No period of study, however protracted, no family connections however influential, no genius however brilliant and persuasive, nay, even the whole in one illustrious union, can set aside the simple laws of human nature, that intellectual riches can only be acquired by unwearied industry."

"Memory, like attention, comparison, or any other operation of the mind, is strengthened by exercise."

To sum up this many sided man is difficult. No one who will read of his life will doubt his genius. As a doctor, and as a man, he will forever stand as a high testimonial to culture and to the glory of medicine.

Samuel David Gross was born July 5, 1805, near Easton, Pennsylvania. His parents were natives of the neighborhood, and of German descent. They were intelligent, prosperous farmers, known throughout the section for their integrity and lofty ideals. His early education was obtained in a log cabin country school. As a boy he was far more interested in sports and play than books; in fact in his "Autobiography," he admits that in his early student days he was much of a failure.

At the age of six years, young Gross decided that he was going to be a physician. This idea remained uppermost in his mind until he found himself well embarked upon his career. At the age of seventeen, he entered the office of a country physician as an apprentice. His first duty was to learn osteology and anatomy, with the help of a rather bad text book and a skeleton. His preceptor gave him very little help and encouragement, so at length he gave up in despair. He had learned enough from this short experience to know that his education was wholly inadequate to begin the study of medicine, so he left the doctor's office and enrolled in the academy at Wilksbarre, then a celebrated institution of learning, where he studied Latin, English, Greek and mathematics diligently for one year. The following year, he divided his time between a private school in New York City and High School at Lawrenceville, N. J. While there he continued his study of the classics, and at the end of the school year, had become a fairly accomplished linguist and writer.

When he was nineteen, he commenced seriously the study of medicine in the office of Dr. Joseph Swift of Easton, Pa. According to their agreement, he was to have the privilege of attending one course of lectures each year at some well recognized school. During the first year of his apprenticeship, he attended the course of lectures given at Jefferson Medical College, at that time a young school with distinguished faculty. He was so enamoured with the school and teachers that he never returned to his preceptor in Easton, but remained in Philadelphia until he received his degree eighteen months later. He promptly opened an office in Philadelphia and practiced there for about a year. As he had very little private work to keep him busy, he spent most of his time in translating several of the popular European medical works. He also published an original monograph upon the "Diseases of Bones and Joints." This work had a small circulation and did not attract much favorable comment. He became discouraged with prospects in Philadelphia so moved back to his old home in Easton, where he practiced successfully for two and a half years. While there he made several scientific observations of some importance. These were published in the Western Medical Journal, then the leading periodical of the West.

In 1833, Gross was appointed Demonstrator of Anatomy in the Medical College of Ohio. Here he became the colleague of Dr. Drake, and it was through this friendship that he became the Professor of Surgery in the University of Louisville Medical School seven years later. During his stay in Cincinnati, he made a great reputation as a teacher, writer and experimentalist. He had studied surgery diligently during this period, and with his fine anatomical knowledge made rapid strides in the mastery of the art. He had declined very attractive professorships of anatomy and medicine during this period because he was waiting for an opportunity to obtain a surgical post. His reception by the medical profession of Louisville was anything but cordial. When it became known that he intended to locate permanently in the city, a battery of abuse was let loose upon him from every conceivable source. Even newspaper articles were written to turn public feeling against him. "To run him out of town" was a common threat. He weathered the storm proudly and was not perturbed by this unwarranted demonstration. Thus he says in his Autobiography "My efforts were gradually appreciated, and I soon triumphed over those designing men, not a few of whom became afterwards my warm personal friends, deploring the part they had taken against me."

Dr. Gross remained in the school as professor of surgery for sixteen years. Each year his professional and social popularity grew, until when the time came for him to leave for Philadlephia College, he was undoubtedly the most popular physician in the State of Kentucky, if not in the whole South. While here, he not only acquired a large practice, but he made some of the most outstanding contributions to medical science of the century. His book on Pathological Anatomy was the standard text for students of medicine for fifty years. He also wrote an authoritative treatise on Diseases of the Genito-Urinary Organs. Perhaps his greatest work was an important two volume system of surgery, published in 1859.

Shortly after he came to Louisville, he opened a laboratory for experimental surgery. He tells several fascinating stories of the objections raised by his colleagues to the animals in his laboratory. Several complained of the unpleasant smell, others objected to the barking of the dogs. These objections apparently did not prevail, however, for he published an important treatise on "The Treatment of Wounds of the Intestines," from laboratory experiments, which had been running for several years. He must have been filled with the true spirit of investigation for he tells how he was forced to provide and care for his own animals as well as doing the menial work around the laboratory.

His writing was not confined solely to medical topics. His biographies of Drake, McDowell, John Hunter, Rutler, Pare, Mott, and others are all attractive readings.

No offer other than the one from his Alma Mater could probably have attracted him from Louisville. In the Autobiography he says that he had grown to love the Kentucky people and the years that he spent in Louisville were the happiest of his life. He considered the school to be one of the leading medical institutions in the country, and it was not because of professional unrest that he moved to Philadelphia. Like so many other great men in medicine, he obeyed the call of his Alma Mater when it came.

Garrison in his "History of Medicine" proclaims Dr. Gross as being the greatest American surgeon of his time. It is interesting to speculate upon the reasons for his greatness. As a scientist and operator, he was no doubt brilliant, as a teacher, he was much beloved;

as an attractive personality, he was outstanding; but most of all, perhaps, it was his great regard for his profession and his unselfish, untiring work for its betterment, that gave him a place in American medicine that few before him and since have attained.

His talents and career as a whole are remarkably similar to Osler's. They were both pre-eminent of their day in professional attainments. Yet in neither case, was it their professional qualifications alone that endeared them to the profession. Each possessed a personality of such great charm that everyone who came in contact with them, whether as student, colleague, patient or friend, invariably remained their most ardent admirer.

Dr. Gross died in 1884 at the advanced age of 84 years. A post mortem examination was performed by his colleague, Dr. DaCosta, and the cause of death was given as "gastric catarrh and cardiac failure." He was cremated and his ashes lie buried in Woodlands Cemetery, Philadelphia.

Now, that I have finished this discourse, I feel even more firmly than before that I have dealth inadequately with this interesting subject. There is a great store of material that I have barely touched upon. There are great names connected with the early days of this school whom I have not even mentioned. My only excuse for these omissions is lack of time and space. If I have succeeded in giving you even a glimpse into the wonderful period in the life of the school, I shall feel rewarded.

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CORRECTION

Through some mistake the "key" for the abbreviations in the list of "Louisville Physicians of 1832", copied from an old directory, were omitted from page 214 of the April 1928 issue. Insertion follows:

N, north; s, south; e, east; w, west; ns, north side; ss, south side; es, east side; ws, west side; b, between ;r, residence; n, near.

WOMAN'S AUXILIARY NOTES

Prize for Councilor District

To the Councilor District showing a county woman's auxiliary organized for every county medical society before the annual meeting in Richmond, September 10th to 13th, the State Medical Association offers a prize of Hygeia subscriptions to the value of $25.00 for distribution to schools, libraries or wherever the winners consider the magazine to be of greatest use. Here is a prize worth working for. Will your district go over the top and win this prize? It will, if you do your bit and help your Councilor to carry on.

A. T. McCORMACK, Secretary,
Kentucky State Medical Ass'n.

COUNCILOR DISTRICTS

First District

Mrs. V. A. Stilley, Benton, Councilor.

Ballard ....
Caldwell ....
Calloway ....
Carlisle—Organized October, 1925. Inactive.
Crittenden ....
Fulton ....
Graves—Organized November 6, 1924.
Hickman ....
Livingston ....
Lyon ....
Marshall—Organized September 1, 1926.
McCracken—Organized March 22, 1927.
Trigg ....

Second District

Mrs. R. L. Schroder, Owensboro, Councilor.

Daviess—Organized April 7, 1927.
Hancock ....
Henderson ....
Hopkins ....
McLean ....
Muhlenberg ....
Ohio ....
Union ....
Webster ....

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Allen—Organized October 1 1927.
Barren ....
Butler ....
Christian—Organized October 22, 1926.
Cumberland ....
Logan ....
Metcalf ....
Monroe ....
Simpson ....
Todd ....
Warren-Edmonson ....

Fourth District

Mrs. S. P. Parks, Irvington, Councilor.

Breckinridge—Organized October 1, 1927.
Bullitt
Grayson
Hardin
Hart
Larue
Meade
Nelson
Spencer

Fifth District

Mrs. S. W. Bates, Louisville, Councilor.

Carroll
Franklin—Organized September 8, 1926.
Gallatin
Henry
Jefferson—Organized September 16, 1926.
Oldham—Organized January 21, 1927.
Owen
Shelby
Trimble

Sith District

Mrs. J. Tom Price, Harrodsburg, Councilor.

Adair
Anderson
Boyle
Green
Marion
Mercer
Taylor—Organized December 6, 1927.
Washington

Seventh District

Mrs. V. G. Kinnaird, Lancaster, Councilor.

Casey
Clinton
Garrard—Organized April 1, 1927.
Jessamine
Lincoln
McCreary
Pulaski
Rockcastle
Russell
Wayne

Eighth District

Mrs. James Ryan, Fort Mitchell, Councilor.

Boone
Bourbon
Bracken
Campbell-Kenton
Fleming
Grant
Harrison
Mason
Nicholas
Pendleton
Robertson
Scott

Ninth District

Mrs. H. M. Bertram, Vanceburg, Councilor.

Boyd
Carter
Elliott
Floyd
Greenup
Johnson
Lawrence
Lewis
Magoffin
Martin
Pike

Tenth District

Mrs. M. C. Combs, Hazard, Councilor.

Bath
Breathitt
Clark
Estill
Fayette
Lee
Madison
Menifee
Montgomery
Morgan
Powell
Rowan
Wolfe
Woodford

Eleventh District

Mrs. J. H. Parkes, Corbin, Councilor.

Bell
Clay
Harlan—Organized October 22, 1926.
Jackson
Knott
Knox
Laurel—Organized January 7, 1928.
Letcher
Leslie
Owsley
Perry—Organized July 11, 1927.
Whitley—Organized December 6, 1926.

NEWS ITEMS

Dr Jos. F. Cook announces the removal of his office to Suite 423, Heyburn Building, Fourth and Broadway, Louisville, Ky. Telephones, Office, City 2976; Residence, Shawnee 160.

Residence, 1813 West Broadway.

Hours from 6:30 to 8 p. m. only.

Dr. R. Lindsey Ireland announces the removal of his office to Suite 721 Heyburn Building, Louisville, Ky .

Hours: 2 to 4 p. m. Phone City 670.

Dr. Phillip Barbour and Dr. James W. Bruce announce the removal of their office from 556 Francis Annex to 421 Heyburn Building.

BOOK REVIEWS

THE CURRENT SIGNIFICANCE OF THE WORD "ALUM", by William D. Richardson, Former Editor, Industrial & Engineering Chemistry; Member, American Chemical Society, American Institute of Chemical Engineers, American Electro-Chemical Society; Fellow, American Association for the Advancement of Science. With references to the literature.

This book distinguishes between the correct usage of terms and the use of the same terms as trade slang. It appears at a time when one lexicographer proposes to adopt as good usage what, in reality, is "shop talk." Such adoption in a single dictionary is a threat to all scientific nomenclature and, if allowed to go unchallenged, foreshadows a scientific literature that will be ambiguous instead of clear, thus depriving that literature of its present value.

The clear, readable statement of Mr. Richardson is timely and will be of interest, not only to chemists but to all other scientists and to exact workers and thinkers in every field of endeavor.

The Commonwealth Press, Inc., Publishers, 1112 South Wabash Avenue, Chicago, Ill. Price, $1.00 net.

BEDSIDE DIAGNOSIS. By American Authors, edited by George Blumer, M. D., Clinical Professor of Medicine, Yale University, School of Medicine; Attending Physician to the New Haven Hospital. Three Octavo volumes, totaling 2820 pages, containing 890 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $30.00 a set. Separate desk index volume free.

Where in the literature can there be found a work on diagnosis, so complete, so finely presented, with such weight of authority, as is to be had in this new three-volume work by 64 diagnosticians, edited and unified by Dr. George Blumer of Yale?

It is a composite word-picture of the study of thousands of individual cases—a study at the bedside with laboratory confirmation, presented through 222 monographs in which there is not one unnecessary word.

The plan of the work is uniform and simple. There are just two steps in arriving at every diagnosis—observation and induction. First, all signs and symptoms, laboratory and instrument findings are noted. Then this symptom-complex is interpreted in clinical terms.

Blumer's Bedside Diagnosis is designed for constant use. Each volume is separately indexed, its contents are stamped on the back in gold and there is a separate desk index volume to the entire work, with a key word at the head of each column like a dictionary.

PHYSICAL DIAGNOSIS. By Charles Phillips Emerson, A. B., M. D., Professor of Medicine, Indiana University, School of Medicine; Author of Clinical Diagnosis. 324 Illustrations. J. B. Lippincott Company, Publishers, Philadelphia and London.

The splendid advances in scientific medicine, characterized especially during the past thirty years by the rapid multiplication of laboratory and instrumental aids to diagnosis, have seemed to many to make less and less necessary the tedious training requisite for skill in physical diagnosis. Even the majority of the recent books on this subject seem to mirror this point of view by presenting physical diagnosis as a diminishing subject, discussing many of its methods in connection with laboratory methods, and tacitly appealing to the latter as to a court of last appeal. On the contrary, however, each advance in medical science has added to, rather than subtracted from, the responsibilities to the man personally responsible for the individual patient, since the more details the X-ray reports and laboratory findings reveal, the more have we to interpret and evaluate in terms of the individual patient; the wider science extends the horizon of medicine, the larger the problem of the bedside study of the patient if he is to benefit by these advances.

Physical diagnosis is, and doubtless will remain, the primary and the fundamental method of diagnosis. Every advance in scientific medicine makes its problems greater, therefore harder . This is our reason for presenting for approval to the medical profession a book which will try to reach the levels of the medicine of today and to train the student to be ready to meet the problems of tomorrow.

In the preparation of this book we have begun with the contributions of the masters in this field, among them Lennec, Skoda, and Flint, have followed with Sahli, Osler, Lewis, Mackenzie, Vaquez and many others, have tried to present the more recent literature as it has appeared in monographs e. g. those of Landis and Norris, Bushnell and Pratt et al., and especially have been watchful of contributions in the current medical journals.

For the illustrations made from photographs we are indebted especially to the Department of Illustration of Indiana University under the efficient leadership of Dr. Vernon Hahn and his assistant, John Howard Griest; for the charts to Paul Iske; and for the drawings to the artists, Ralph Fields and William R. Fisher. For borrowed illustrations, I am especially indebted to Dr. Milton S. Hartzell, as well as to others whose names will be mentioned in the legends. C. P. E.

LECTURES ON THE BIOLOGIC ASPECT OF COLLOID AND PHYSIOLOGIC CHEMISTRY. A series of lectures given at the Mayo Foundation and the University of Wisconsin, Minnesota, Iowa, Washington (St. Louis), and the Des Moines Academy of Medicine, Iowa. 1925-26. 12mo of 244 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1927. Cloth, $2.50 net.

This group of lectures on the biologic aspects of physiologic and colloid chemistry was given during the fall and winter of 1925-1926 under the auspices of the Mayo Foundation and the local chapter of Sigma Xi at Rochester, Minnesota, the Medical School of the University of Wisconsin, Madison, Wisconsin, the Graduate School of the University of Minnesota, Minneapolis, Minnesota, the Medical School of Washington University at St. Louis, Missouri, the Graduate School of the University of Iowa, Iowa City, Iowa, and the Des Moines Academy of Medicine at Des Moines, Iowa.

The lectures cover a number of important aspects of recent investigation in the field of colloid chemistry from the biologic standpoint. The lectures themselves were selected because of their original investigations in the fields concerned. The volume thus covers in an authoritative manner many of the important questions in colloid chemistry of interest not only to chemists but also to physicians, biologists, and many others.

NEOPLASTIC DISEASES. A treatrise on Tumors. By James Ewing, M. D., Sc.D., Professor of Pathology at Cornell University Medical College, New York City, Third Edition, Revised and Enlarged. Octavo of 1127 pages with 546 illustrations. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $14.00 net.

This work, recognized as a classic on the publication of the first edition, has been subjected to a revision amounting to rewriting.

The chapter on Tumors of Bones has been entirely rewritten on the basis of information obtained largely from the Codman Registry of Bone Sarcoma. Several new subvarieties of these tumors have been formally recognized. The classification of Mammary Cancer has been simplified and brought more in accord with clinical varieties. The discussion of Brain Tumors has been recast so as to include recent contributions in this field and the newer nomenclature has been adopted.

While these are the major additions, throughout the entire book numerous changes have been made on every page—incorporating new advances, clarifying a statement and in other ways bringing the work absolutely down to date of publication. About 60 new illustrations have been added.

Dr. Ewing's chief object was so to present symptoms and signs that cancer could be recognized in its incipiency, particularly by the man in general practice to whom such cases usually come first; to enable the physician to distinguish between benign and malignant growths; to determine upon the prognosis and a possible course of treatment.

NERVE TRACTS OF THE BRAIN AND CORD Anatomy: Physiology: Applied Neurology. By William Keiller, F. R. C. S., Ed. Professor of Anatomy and Applied Anatomy, University of Texas.

This book on the nerve tracts of the brain and cord is the result of twenty years' experience in teaching the anatomy of the brain and cord in such a manner as to enable students to approach nervous diseases, thinking in terms of anatomy, physiology, and pathology, as applied to the nervous system.

Part I supplies a laboratory manual for the study of the nerves and tracts in the central nervous system as they may be demonstrated in the cord and brain stem in the adult and foetus and in pathological specimens stained for myelin, as well as in early degenerations stained by the Marchi technique.

Parts II and III form the basis of a course of thirty lectures giving, in part II, a summary of the anatomy and physiology of the nerve tracts, mainly based on newer methods of investigating the autopsy findings in clinical cases, and in part III, the leading features of the better known nervous diseases, correlating their symptomatology with anatomical phsiological and pathological data.

The Macmillan Company, publishers, New York.

Malaria Treatment of Tabes.—Thirty unselected cases of tabes were treated with malaria bc Wullenweber. Clinical improvement was obtained in 87 per cent; improvement in the reactions of the cerebrospinal fluid, in 82 per cent. There were tow deaths with symptoms of vasomotor collapse. In consideration of the relatively good prognosis as to life for tabetic patients as compared with general paralytics, malaria treatment is justified in the first named, he believes, only in strong persons, without pronounced aortitis, obseity or hypertonia.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Franklin: The Franklin County Medical Society met in regular monthly session at the Capital Hotel, April 5th, 1928, at 12:00 noon.

The following members were present: Drs Jackson, Youmans, Paterson, Coblin, Travis Budd and Ginn.

Dr. L. T. Minish, secretary, was absent and the minutes of the previous meeting were not read.

Dr. Jackson had charge of the program and presented a paper on the subject of "Feeding the Sick Infant." A subject which is interesting to all general practitioners. Dr. Jackson handled his subject in a well informed way which was followed by a liberal discussion from all the members present.

L. T. MINISH, Secretary.

Union: The Union County Medical Society met for its January meeting the last Tuesday in January, being the thirty-first day of the month, at the Kiwanis Hall, Sturgis, Kentucky, guests of Dr. Gordon Carr.

The following were present: Drs. H. B. Allen, G. B. Carr, D. C. Donan, C B. Graves, W. W. Martin, Grant McKeehan, D. M. Sloan, H. B. Stewart, J. A. Watkins, I. D. Winston, J. G. Wynss.

The minutes of the previous meeting were read and approved.

Dr. W. W. Martin presented a case of glandular enlargement of the neck. Dr. G. B. Carr presented two cases, one a male aged eighty-four years, having worn retention catheter thirteen months, another a breast infection in middle-aged woman.

A motion was made and passed that this society cooperate with the State Medical Association in the March campaign for the Early Diagnosis of Tuberculosis, and that the program be so arranged.

It was also moved, seconded, and unanimously carried that the society use newspaper advertising space during the month of February, as a means of mass education for the collection and settlement of accounts.

A voluntary collection was taken up from all present, each person contributing twenty-five cents.

On motion by Dr. C. B. Graves, seconded by Dr. H. B. Allen, it was carried that the contract for county medicine and surgery for paupers be ignored by this society, following which, a general discussion of the business side of practice was carried on, and the society adjourned at 11 p. m. to meet at Morganfield, Kentucky, on the 28th of February, 1928, with Dr. D. C. Donan and Dr. H. B. Allen, a committee of arrangements for the meeting

DAVID C. DONAN, Secretary.

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KENTUCKY MEDICAL JOURNAL

Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets.

Subscription Price, $5.00

Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

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New—Bethea's Clinical Medicine

Out of the South comes an entirely new and different Clinical Medicine. It was written to meet the needs of that great majority of general practitioners whose work is among patients in homes and hospitals where conditions offered are not highly favorable, and where facilities to aid the physician in his efforts are limited.

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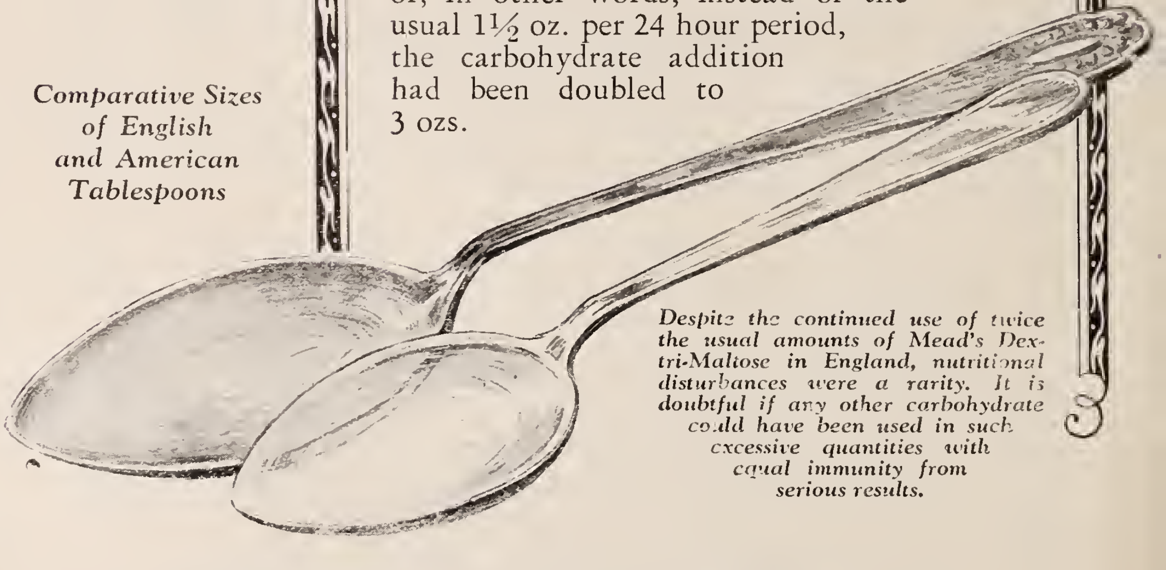

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., JULY 1928 No. 7

EDITORIAL

THE ANNUAL SCHOOL FOR COUNTY AND CITY HEALTH OFFICERS

This letter from one of our oldest health officers was read with so much interest that we take great pleasure in publishing it.

"To the Editor:

"It has been my privilege and pleasure to attend every meeting of the school for county and city health officers conducted by our State Board of Health since its organization in 1912; but, never before have I enjoyed a meeting and came away with so much knowledge as the recent one. I feel the profession of the state should know what great work the State Board of Health is doing in training its health officers.

The meeting was opened with a prayer by Doctor Arthur McCormack, our beloved state health officer. This invocation was worthy of an eminent divine and was a thanksgiving from the heart. This was "no word of mouth" but a grateful prayer for the deliverance of health officers from political assault and a prayer to give them grace for greater health work.

The young, progressive Mayor of Louisville, Honorable W. B. Harrison, gave a most splendid opening address, and from this we learned that his interests had been recently awakened to the health problems of our one metropolitan city in Kentucky.

The visiting members of the staff were Doctor C. C. Waller, United States Public Health Service, Doctor H. R. Mustard, Health Officer, Murfreesboro, Tennessee, and Doctor M. E. Barnes, Health Officer, Greenville, Ohio. Probably the most outstanding address was given by Doctor Edward Francis, Washington, D. C., on Tularemia. Doctor Francis is the pioneer worker in this truly American disease, and his pictures and demonstrations were exceedingly interesting.

Doctor Lillian H. South, director of the Bureau of Laboratories, as usual, gave one of her demonstrations that are always looked forward to by the health officers. We are at all times proud of the work that she is doing. Everything new that is available in laboratory technique she acquires and demonstrates each year at these meetings.

Doctor T. A. Frazer of Marion, who is one of our oldest in point of service as a part time health officer gave a most interesting talk on the study of wild life as a hobby. Doctor Frazer is in constant demand by the broadcasting associations for his talk and it was a real treat to hear him at this meeting and over WHAS.

Kentucky now has thirty-five all time health departments and thirty-five all time health officers and it was quite a pleasure to meet these new and active men present at this meeting. The first meeting I attended had only one all time health officer and that was in Jefferson County.

We wish very much that these meetings could be arranged so that every doctor in the State could have an opportunity to attend them, for there is not a problem that comes to the health officer that the general practitioner does not, at sometime, have to meet, and, we cannot give too much praise and encouragement to our State health officer and his staff for this splendid meeting and for the ardent work in providing such a good program.

H. H.

THE POST-GRADUATE COURSE

The June Journal contains the calendar for the post-graduate course which will be given in Louisville July 9-21, 1928 and we are again referring to it because we consider this a very great opportunity for the medical profession to become familiar with the new contributions to medical science. If there is any subject that is not covered in this program that you wish to become familiar with, if you will notify Dr. Phillip Barbour, arrangements will be made to take up that line of work.

The laboratories of the State Board of Health will demonstrate the technique for diagnosis of tularaemia and undulant fever. Doctors will have the opportunity and facilities of doing any routine laboratory work that they desire.

Mr. E. H. Sandlin, who is director for the School of Laboratory Technicians, has just returned from an extensive visit to the laboratories of the Michigan, Ohio, Tennessee and Alabama State Boards of Health and will assist Dr. L. H. South in giving demonstrations in all the newer methods of laboratory procedures.

If you have not already done so, please register as soon as possible with Dr. Phillip Barbour for this course. A fee of one dollar ($1.00) is assessed to cover the actual charge of postage and other incidentals.

UNDULANT FEVER.

(Malta Fever)

During the past few years undulant fever has been reported with increasing frequency from various localities throughout the United States. Undulant fever is a specific, febrile, septicemic infection of man in which the fever is of irregular character, often intermittent, and of indefinite duration with a tendency to frequent relapses. Bacteriologically it is characterized by the presence in the blood of the Micrococcus melitensis or the Bacillus abortus. The human subject is most commonly infected through milk. Goats milk was formerly considered the only source of infection, but more recently an association between contagious abortion of cattle and a type of undulant fever in man has been emphasized.

The characteristic symptoms are anorexia. loss of weight and strength, headache, chills, fever and sweats of varying intensity throughout long periods of time, frequently with remissions. The fever has a tendency to exhibit undulations which may vary in character and length. Evidence of the effect on the nervous system is constant and arthritis is a common symptom. Orchitis, mammitis, and neuritis are also fairly frequent symptoms. The average period of the temperature is given from 60 to 120 days or more. Sometimes the history will give suggestive information, particularly if goats milk has been ingested, or if the milk of cows from herds which have been known to have suffered from Brucella abortus infection has been used. Without clinical laboratory examinations the differentiation of the affection from certain other infections is difficult or impossible. The isolation of Brucella melitensis or Brucella abortus from the blood stream is the most reliable procedure. Although, Brucella melitensis is readily grown, cultures of Brucella abortus from the blood are most difficult to obtain. Agglutinins appear in undulant fever cases as early as the fifth day. Agglutination of Brucella melitensis or Brucella abortus is often of value but great care should be taken to avoid errors as agglutinations in low dilutions sometimes occur in normal serum as well as the serum of other infectious diseases or, as the reaction may persist for years after the original illness, the patient in question may be suffering from another fever and still give this reaction.

Typhoid and para-typhoid fever and the typhoid type of tularemia are most often confused with undulant fever. The bacteriological examinations with the isolation of the specific organisms of the respective diseases, as well as the agglutination tests will usually differentiate these affections.

Specimens of blood from suspected cases are secured, in the same manner as for suspected typhoid case. The Laboratories of the State Board of Health are now equipped for this test.

C. N. Kavanaugh.

INTERSTATE POST-GRADUATE ASSOCIATION WILL MEET IN ATLANTA

For the first time in the South there will be held a medical association whose procedure is unique and of remarkable interest.

The Interstate Post-Graduate Medical Association of North America will meet in Atlanta, Ga., October 12th to 19th, inclusive. This association in 1926 met in Cleveland, Ohio, where nearly 5,000 practicing physicians were registered. At the Kansas City meeting last October 5,200 were registered.

Those who come to this remarkable sort of medical meeting will really be given a post-graduate course by the leading medical men of this country and abroad. The daily meetings are held from 7 A. M. to 1 P. M., from 2 to 5 P. M. and from 8 to 10 P. M. Every one who has attended these meetings has been amazed by the magnitude of the work done, by its quality, by the number of distinguished guest and by the remarkable interest aroused.

It is hoped that every physician in Kentucky who can possibly do so will plan now to attend this meeting. The only charge imposed on physicians who are in good standing in their county, state and national organization is a registration fee of $5.00.

Low Residue Diet.—The experiments reported by Hosoi et al. suggest that the best basis for a low residue diet is lean meat. To this might be added rice, hard boiled eggs, sugars (except lactose) and probably small amounts of fruit juices, tea and coffee. The highest degree of absorption could probably be secured by giving small amounts of food several times during the day. Experience with dogs suggests that less material will be carried into the colon if the diet is kept fairly dry. There is considerable evidence both in the experiments here reported and in the literature to show that when it is desired to prevent bowel movments, milk should not be given.

ORIGINAL ARTICLES

HEADACHE: A DIAGNOSTIC PROBLEM.*

By Morris Flexner, M. D., Louisville.

The large number of patients consulting us complaining primarily of headache has focussed my attention on this wide but interesting field. What should be done with these cases? Shall we, after a round of scientific interrogtion give them a coal tar prescription and send them on their way, or shall we act as doctors in the broadest sense of the word and really try to ascertain what is the matter with them? If the latter course is pursued, frequently much of real interest to the doctor and of value to the patient will be discovered. A little volume on this subject published in 1823 was recently placed in my hands. The introduction begins as follows:

"With the exception of common colds there is perhaps no class of diseases which prevails so universally as those distressing affections of the head, widely known and comprehended under the general name of "headache." No age nor sex is free from their assault, and even the best general health affords no exemption from their occasional attacks. The healthy and the sickly, the corpulent and the meager, the cheerful and the melancholy, temperate and intemperate are all in turn subjected to the painful invasion of these pertinacious disorders."

The situation has not changed greatly in the last hundred years. How many thousands of dollars worth of medicine is dispensed every year over drug store counters to people offering the information that they are suffering with headaches. Much has been written on the dangers of headache cures and the American Medical Association has tried hard to save the public from the ravages of some of them. The cardiorenals and patients with severe anemia swallow handfuls of acetanilide and other coal tars under some entrancing name, and as a consequence fill an early grave. Many people go about with a bluish menthemoglobin hue because of them, half alive. But the pill peddler must live and patient medicine companies declare dividends!

Many classification of headaches have been offered. Among the simplest is that which divides them into those of intra-cranial origin and those of extra-cranial origin. Most prominent among the intra-cranial lesions are tumors, abscesses, syphilis, vascular disorders, and acute inflammation of the brain substance, encephalitis or its membranes, meningitis. Of the vascular disorders, hyperemia, hemorrhages, thrombosis and embolism are the most important. Migraine is considered to be a type of the intracranial headaches by some authorities, by others it is omitted. Pituitary headaches also occupy a very important position in intracranial classification.

Extracranial headaches are commonly due to ocular conditions. Among the most important are, errors of refraction, muscular fatigue, iritis and glaucoma. According to de Schweinitz thirty to sixty per cent of functional headaches are wholly or partially due to eye-strain in the widest sense of the term.

Headaches due to the involvement of the sinuses, particularly the ethmoid, sphenoid, frontal and antra, have become recognized in recent years largely due to the efforts of Sluder. The so-called vacuum headache, a condition brought about by the closure of the frontal sinus without nasal symptoms, is now recognized as a clinical entity. Pain from the infection of an antrum is usually referred to the infra-orbital area or zygoma. According to Skillern at times it may be directly over the frontal sinus on the same side. Pain from disturbance of the ethmoids is felt over the parietal region or directly between the eyes above the roof of the nose. When there is involvement of the sphenoid it presents itself as a diffuse feeling of pressure in the occiput, sometimes extending into the mastoid process, even into the temporal region. Extension downward into the shoulders of the affected side, so-called spheno-palatine syndrome, is also not infrequently associated wtih this affection. Dizziness is more often associated with the infection of the sphenoid sinus than any of the others. The more intimate details of this phase of the subject I will leave to my otolaryngological conferes.

Rheumatic or indurative headaches are not common. They are caused by nodules in some of the muscles at the base of the neck, usually the trapezii and scalini at their points of insertion, secondary to a focus of infection elsewhere and frequently accompanied by fever and leucocytosis.

Dental headaches may arise from disease in the upper incisors or from impacted wisdom teeth, especially in the upper jaw, or from pulp stone. The headache of the chronic cardio-renal, the chronic gastrointestinal patient will only be mentioned in passing. The headache of the neurasthenic, the hypochondriac, is an ever present complaint with that group of unfortunates. That feeling of constriction over the top of the head which the French, Charcot in particular, have so aptly described as the "Casque Neurasthenique" is not uncommon. Analyzing two thousand nine hundred and thirty cases of headache, Cabot classified one thousand and thirty-nine as being due to psychoneurosis. This gives us an idea as to how common this particular headache is.

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*Read before the Louisville Medico-Chirurgical Society.

The question of the precise mode of the production of pain has always been of speculative interest. Lord Dawson in an article in the Canadian Journal, April, 1927, argued that the origin of headache must, of course, lie in the structures that are sensitive to pain. To quote from him, "the dura-mater and its extensions like the falx cerebri and the tentorium and the anterior two-thirds of the scalp, are supplied by the trigeminal nerve. The posterior region of the scalp and the dura of the posterior fossa are supplied by sensory fibres coming from the upper cervical segments. Tension or stretching of the dura would, as in the case of the parietal peritoneum, produce pain whereas the brain like the intestines is insensitive. How is this tension set up? The skull is a rigid container which closely fits the brain, and the spare space for the expansion of the latter is strictly limited. If for any reason the space is inadequate for the brain expansion, it is suggested that tension results and pain may follow, referred to within the cranium or it may be the scalp. The expansion may be produced by increasing the arterial inflow or decreasing the venous outflow, or by a swelling of the brain substance. Sudden exertion will produce arterial flushing and lowering the head below the level of the body, venous engorgement."

Many people believe that vasomotor instability is the cause of headache, and that a spasm of cerebral arteries is a big factor. At this point I should like to consider briefly the subject of migraine. There are as many definitions of the malady as there are articles written on the subject. Dr. C. T. Symonds in the Proceedings of the Royal Society of Medicine, February, 1927, states: "Migraine is a liability dating from early life to recurrent attacks of headache, which are at one time or another associated with characteristic visual and sensory disturbance, and are frequently accompanied by nausea and vomiting." From the standpoint of etiology the most important thing is heredity. There are beyond a doubt a large majority of cases of migraine in which it is distinctly a hereditary malady. Buchanan after a statistical study of heredity migraine in the Mayo clinic claimed that the heredity followed the Mendelian law of inheritance.

Many cases in adults may be traced to a beginning in early childhood. Flatau in a history of five hundred cases showed that in twelve per cent, the trouble started before the age of fifteen, while cases arising late in life are not migraine, but due to some organic brain lesion. There is much speculation as to the cause of the attack. Symonds believes the most likely causes are worry, and excitement, or anything that upsets the equilibrium of the individual. Among the commoner things are various intoxications, either alcohol or nicotine, infectious diseases, irregular living or habits, mental stress, sexual irregularities, diseases of the eyes, throat, etc.

Curtis Brown in the British Medical Journal of January, 1925, thinks that migraine is a result of protein poisoning. He believes it occurs in individuals who have inherited a damaged metabolism for nitrogenous foods, and the resuls he has obtained in patients deprived of protein, convince him that he is correct. All of us have seen cases of headache improve on low protein diet.

A typical attack of migraine consists of a prodromal stage in which there is lassitude, disinclination to work, gastro-intestinal disturbances, visual disturbance and vertigo. At times there is depression or irritability, euphoria may occur at times. Many types of aura have been described; numbness and paresthesias of the extremities, nasal, auditory. It is because of the prominence of the visual aura that the disease has frequently been called ophthalmic migraine. The four main ocular manifestations are:

First, periodic hemiopia; second, scintilating scotoma (battleship scotomata and fortification spectrum); third, amaurosis migrainosis; fourth, photophobia migrainosis. The headache is described as throbbing, bursting or splitting in character. It is frequently unilateral, may be bilateral, and is accompanied by nausea and vomiting. In children, the gastro-intestinal symptoms may overshadow the headache. Symonds believes that many cases referred to as cyclic vomiting in childhood are predecessors of true migraine.

The question of the underlying pathology of this disease again leads one into the field of speculation. Symonds thinks the conception of vascular spasm can explain the whole picture. He cites a case of Raynaud's disease in which the patient developed migraine, to prove his point. He believes that spasms of the vessels, with local asphyxia gives a localized edema of the brain surface and hence produces pain. He has seen two cases of typical migraine in patients with subarchnoid hemorrhage. Binocular blindness could be explained by spasm of the retinal vessels. The other theory that is of interest is that migraine is a pituitary disorder. Hartsung in the New York State Medical Journal for March, 1927, explains it on the basis that there is an increased demand made on the pituitary as a result of which it becomes engorged and enlarged. As the sella tursica is unexpansible its enlargement causes pain. The outlet is superiorly and here the optic chiasm is located. Pressure on the chiasm could account for the visual symptoms, the scotomas and hemianopsias seen in migraine.

There are several interesting endocrine points about the subject. It frequently begins about puberty and closes with the climacteric. In women attacks are frequent at menstrual time, and they may be free from attacks during the time of pregnancy. From x-ray studies of a large series of cases, Hartsung believes the sella to be definitely small in migraine cases. However, we know that estimation of the size of a sella by x-ray examination is not without a factor of error.

A word about migraine and epilepsy. Because of the aura the two diseases have been more or less associated. Buchanan feels that there is a relation and that migraine and epilepsy are transmitted from generation to generation as the same underlying factor in the germ plasm. His statistics seem to demonstrate that an individual with migraine is more apt to produce epileptic offspring than is an individual with epilepsy.

Migraine and epilepsy may occur simultaneously, that is, an epileptic fit may appear during an attack of migraine, or the *petit mal* attack turn into migraine. The aura, the attack, and the period of sleep, are the greatest points in common. In migraine the phenomena are sensory, in epilepsy they are motor. In migraine the premonitory stage and the aura are prolonged, in epilepsy, brief. Clonic spasm is unknown in migraine. In migraine the delirium, the somnolence, stupor and loss of consciousness observed occasionally, result from pain. In epilepsy they follow the fit.

It is to be expected that a disease whose pathology is as little understood should have a diversified treatment. Such is the case. All are agreed that prophylaxis of the attacks is important and regulation of work, exercise, recreation, and diet are paramount. Prompt emptying of the intestinal tract at the onset of the attack seems to help some. Others have success with such drugs as luminal, pyramidon, phenacetine, antipyrine, bromide with or without caffeine, and finally aspirin. Hartsung thinks morphine should never be given, but every one has seen patients, I am sure, who required morphine or one of the opiates to relieve pain. We have one patient who claims to have been improved by removal of his gall-bladder. In between attacks Hartsung feels that pituitary derivatives should be tried in every case, either hypodermatically or my mouth! In case there is evidence of hypofunction of the thyroid or gonads these should be added.

A word about headache in children. There is no complaint that suggests greater trouble to both parents and physician than that of severe headache in a child. At once the unpleasant diseases of meningitis and poliomyelitis are thought of and must be excluded by careful physical examination. Headache in children not relieved by evacuation of the intestine and simple remedies, if progressing in intensity and accompanied by fever, should be investigated with a lumbar puncture. A child screaming with headache usually has an organic lesion. Frequently the child localizes the pain over the forehead.

Surveying the problem as a whole it is not a simple one. It may be simplified by taking a careful detailed history. Such things as the age at which the attacks began, whether they are hereditary, the character of the pain and its location, the time of day in which it appears, are essential. Examination of the head for points of tenderness may give one the clue. This applies not only to areas over the frontal, parietal and occipital regions, but particularly about the orbit and over the face. Pressure on the eye-balls may give a difference in sensation.

From a laboratory standpoint blood counts frequently will help. Profound anaemia might account for all the symptoms, or a leucocytosis suggests that a further investigation must be made if we are to locate the seat of the trouble. Urinalysis and blood chemistry examination frequently go hand in hand with the hypertension that accompanies the hypertensive form of headache. Every obscure case should be subjected to the x-ray. Not only will areas of rarefaction and evidences of increased intracranial pressure be found at times, but also very small sella tursicas may be seen in the presence of other symptoms suggest the diagnosis of a pituitary headache. Needless to say a Wassermann must always be done.

Consultations with ophthalmologists, otolaryngologists and dentists have frequently to be resorted to in order that the medical man may be sure of his ground. I know of no group of cases that requires greater study to determine whether the problem is a simple or a complex one.

Time and space will permit the inclusion of only a few case reports.

Case Reports.

Case I. Patient, male, white, aged 29, first seen with Dr. C. Thompson on January 7, 1928, complaining of excruciating headache. Pain largely in right eye and back of eye, and in right parietal and temporal region. Said eye felt as if it had long sharp tail on it which cut as it moved in head. Had had large quantity of aspirin and some codeine with no relief. Was given morphine sulphate, 1-4 grain (hyp), and left another fourth to be taken by mouth if necessary. During the night patient took that, ten grains of veronal and more aspirin, with no relief. Was brought to hospital next day. Temperature on admission was normal, soon rose to 100°F.

Of especial interest in past history was an old history of malaria contracted in Africa three years ago, a fall from an airplane six months ago with slight injury to neck, and a cold and grippe attack a few days previously, without fever.

On admission the blood count was: hemoglobin 77%, erythrocytes 4,460,000, leucocytes 18,900, polymorphonuclears 80%, lymphocytes 19% and eosinophiles 1%. No malarial plasmodia found. The urine showed a trace of albumin and a few pus cells but was negative otherwise. On physical examination little of interest or help was found. There was no rigidity of the neck, the head could be rolled from side to side and the chin placed on the chest. There was no Kernig, no Brudzinskii reflexes active not exaggerated. The liver was below the costal margin, spleen not felt. Ophthalmoscopic examination by Dr. Pfingst negative for retinal changes. Because of the extreme pain, the fever and the leucocytosis it was thought best to make a spinal fluid examination. Lumbar puncture was done January 8, 1928, at 4 p. m. Pressure 180 mm., spinal fluid 15 cc. clear colorless fluid withdrawn, reducing pressure to 120 mm. Fluid showed no globulin, cells less than one per c. mm. X-ray examination of teeth, the sinuses and upper five cervical vertebræ negative. In mid-parietal region on right, an irregular oval area of decreased density a little larger than a quarter was seen. Pressure over this area gave no pain, nothing unusual to be felt.

Examination by Dr. Shelton Watkins on January 11th. His impression was: ears, mastoid; nose, nasal sinuses and throat may be excluded.

Following lumbar puncture the headache improved. The leucocyte count receded to 14,850 on January 9, 1928, with 81% polymorphonuclears and on January 11, was 8,350, with 84% polymorphonuclears. He was discharged on January 13, having gotten better gradually but still with some slight headache, throughout the day. The exact cause of the small area of rarefaction in the right parietal was not determined, but was not thought to have any bearing on the headache.

A few days after being brought home, patient reported a sanguineous purulent discharge from nose. This was examined by Dr. Watkins who examined patient at the same time and could attach no importance to it. On a subsequent examination at his office a thin stream of purulent material was seen coming from one sphenoid cell after suction. This was not thought enough to account for the clinical symptoms. Under rest and improved hygiene the patient has recovered. In spite of thorough and the best of help the cause of headache is still problematical.

Case No. 2. Mrs. H. A. W., aged 58, first seen on October 25, 1926 with Dr. J. A. Flexner, complaining of headache. Preceding the attack there was a slight pain on right side of nose, spreading upward and over the brow, increasing in intensity until prostration was complete. This was followed by nausea and vomiting, with no visual disturbances. Of special interest is the fact that these attacks did not begin until after the menopause which occurred at 43. At the beginning the attacks occurred four or five times a year, but within the last three years they had been occurring much more often until within the last year they were only about ten days apart, and lasting from two to five days each time, and leaving the patient completely prostrated. Physical examination and routine laboratory tests, including blood count, urinalysis and Wassermann were all of no help. Because of the aura preceding the attack it was thought that luminal might be of assistance. She was given a prescription containing sodium bromide, 15 grains, and luminal three-fourths of a grain three times a day. This was later reduced to one grain of luminal and fifteen grains of bromide once a day. The result has been striking. One attack followed almost immediately after treatment was started and since then, almost a year and a half, there has been only one attack and that not a severe one. Along with this her general health has improved greatly.

Case 3. Patient, female, white, aged 54, seen September 12, 1927, with Dr. J. A. Flexner, complaining of headaches. She said they began as a girl, not so severe then as in recent years, but had them as early as ten years old. Married at twenty-one, headache worse since then. Described as "sick headache," goes to bed feeling better than usual, sleeps better than usual, wakes up so sick she cannot lift head from pillow. For a long time, one half of head involved, varied from side to side. Vision not so good then, things had a pinkish color at times. No blindness or flashes, no dizziness, no tenderness of scalp. Vomited bile usually. Averaged one a week or ten days for thirty years. In her family history there is no record of headaches in either parent. One great aunt supposed to have had them. General health good otherwise. Nothing of particular interest in past history, except that during the period of gestation she was free from attacks. It is known that at this time there is increased pituitary activity. Examination showed well developed, well-nourished female. Blood pressure 115-70. Examination essentially negative for defects bearing on complaint. Body covered with lanugo hair and general habitus of hypopituitarism. X-ray of sella tursica thought normal by Dr. Bell.

Lumbar puncture was performed and 8 cc. of clear spinal fluid removed apparently not under pressure. This was normal fluid in every respect and showed a negative Wassermann. Because of a slight tendency toward obesity, the patient being about twenty pounds overweight, she was given a prescription containing whole pituitary, powdered thyroid extract and luminal. Once a week for a few weeks she was given one cc. of surgical pituitrin hypodermically. The last bad attack she had was in November, 1927. She has had one slight headache since then, but no further attacks. At present she is taking one cc. of surgical pituitrin every week or ten days and is taking about eight grains of powdered whole pituitary and a grain and a half of powdered thyroid extract with one grain of luminal a day. She is free from headache and is greatly improved, mentally as well as physically, as her whole outlook on life has been changed by the relief from pain.

DISCUSSIONS

Charles G. Lucas: Dr. Flexner has given us a splendid resume of the subject of headache. Some time ago I heard a remarkable paper read on this topic by Ludwig Kolb, of New York. He called attention to cases where change in the sella c/ turica was responsible for the headache, and stated there were a great many cases due to that cause.

I have been very much interested in the subject of migraine, because in doing duodenal drainage patients have complained of headache simulating migraine but did not present typical symptoms. I recall four cases of that nature. These patients have been taught to drain themselves, and do so once per week, once per month or once or twice a year and have been much relieved.

I would like to ask Dr. Flexner in closing to tell us whether he has had any similar experiences.

James W. Bruce: Dr. Flexner's paper was very interesting, and I have little to add except to emphasize some of the points he mentioned, especially with reference to headache in children. Whenever a child has headache which is severe and persistent, it is likely to be due to organic lesion and should be carefully investigated. However, there are many exceptions to this rule. I recall a child Dr. Flexner and myself saw together. The boy was subject to attacks of recurrent vomiting and usually complained of headache during his attacks. Once he was taken with headache and vomiting and was treated for acidosis in the usual way for 48 hours before he was discovered to have meningococcus meningitis.

Wm. E. Gardner: The paper presented by Dr. Flexner is exceedingly interesting, and as he says, the subject of headache is a very large one. His remarks about taking a complete history and making a thorough examination in the presence of headache are especially important.

The question of migraine is also a big problem, and whether there is any relationship between migraine and epilepsy is still open to discussion. Although adults may frequently suffer from migraine, in most cases they do not have attacks of grand mal associated therewith. It is agreed now, however, that attacks of migraine may, in some instances, be epileptic equivalents.

There is certainly no relationship between migraine and tic douloureux. Physicians have sometimes been confused by attacks of headache accompanied by a spasmodic pain in the side of the face and advised an operation, yet there is no relationship whatever between migraine and involvement of the Gasserian ganglion.

Pituitary headache is interesting. I think sometimes these patients are temporarily relieved by the administration of pituitary extract. Roentgen-ray examination may or may not show abnormality of the sella turcica. Variation in the deposition of fat is common in these cases, as mention by Dr. Flexner in Case 2. It has been my experience, however, that females showing signs of pituitary deficiency have been tall and slender, rather than fat, with a tendency to hypertrichosis and masculine voice. Of course, in the male there may be rotundity, feminine voice, abnormality in development of the genitalia, the bony structures, etc. and in such cases the importance of roentgen-ray examinations to determine skeletal growth must be kept in mind.

As mentioned by Dr. Flexner the theory has been advanced, based upon a large series of cases, that headache is often due to psychoneurosis. There is no question about the fact that many of these individuals who have headaches suffer from a mild form of neurosis. They are frequently in states of anxiety, under mental strain and excitement and during these periods they have intense headache, yet when things are going along normally they are practically free from headache. No doubt the question of psycho-neurosis has been introduced in a very large number of these cases because no pathologic basis could be demonstrated. Every form of physical examination may be made without throwing any light on the cause of the headache, and yet every case should be studied exhaustively.

At the meeting of the Southern Medical Association at Atlanta in November, 1926, Dr. Holbrook of New Orleans, read a paper on headaches due to cervical arthritis, showing a series of lantern slides where there was marked arthritis of the cervical vertebræ, and called attenion to the importance of this type, which is sometimes overlooked.

The subject is of extreme interest and I have enjoyed hearing Dr. Flexner's paper, which has been presented in a very practical and instructive sort of way.

Samuel G. Dabney: Dr. Flexner has given us an admirable paper on headache. First, as to migraine: The consensus of opinion is that correction of refraction and muscle imbalence quite frequently help but rarely cure this disease. Its tendency to disappear or become much better in middle life is well known. In rare cases as the attack of headache, nausea and ocular symptoms disappear the hemianopsia remains permanently. I have seen one such case; this was in a lady of about 70 who had been subject since her youth to severe attacks of typical migraine. These attacks were much less severe in middle life as regards the headache, but ocular symptoms would occur now and then. When she was about 60, after one of these attacks, she observed that her half-sightedness remained, and it has continued ever since then. Examination shows typical hemianopsia with normal central vision; the condition has remained the same. Could this be due to a thrombosis following an angio-spasm?

One of our Buffalo colleagues, I think Dr. Lucien Howe, studied two hundred cases of migraine, and in not a single instance did he find epilepsy associated with it.

In regard to ocular headaches outside of migraine: Some oculists believe that these headaches may occur as violent outbursts at intervals of many weeks or even months, but I have never been convinced of the truth of this. Ocular headaches, as a rule, are frequent and habitual; they are rarely one-sided; they most frequently affect the brow, but not rarely the occipatal region, rarely the vertex. The commonest cause of such headaches is astigmatism often combined with hypermetropia.

Besides the errors of refraction, muscle imbalance, particularly weakness of convergence and a tendency of one eye to go a little higher or lower than the other (a condition called hyperphoria) is a common cause of headache.

Finally, in a certain proportion of cases headache is caused by excessive eye-strain in normal eyes. For instance, I have recently seen a man whose work required him to draw lines less than a 25th of an inch apart for several hours a day.

Now as to headaches from nasal conditions: In my experience they are generally one-sided, though there exceptions to this.

Suppurative disease of the sinuses, both acute and chronic, is a common cause of headache. Sometimes a simple hypertrophy of the nasal mucous membrane may cause it. A deflected septum, particularly if it interferes with sinus drainage may be a cause.

I do not think that headache caused by vacuum of the frontal sinus is quite well established—there is considerable difference of opinion about it. Of course the nasal and pharyngeal region, including tonsils and sinuses, may be the cause of infection which causes the headache.

Leon K. Baldauf: I have enjoyed Dr. Flexner's paper very much. I simply wish to briefly mention three or four cases similar to those he reported.

Four years ago I saw a woman with migraine presenting the typical text book picture. Dr. Dabney saw the case with me in consultation. The patient had taken on an enormous amount of weight and we suspected some endocrine disturbance. Finally we gave her ovarian extract and to our great surprise after three or four weeks' treatment her migraine completely disappeared and has not returned.

Six weeks ago I saw a child with most severe headache and we suspected some intracranial lesion. Lumbar puncture was performed and the child was relieved almost immediately. There has been no recurrence of the headache.

Some time ago I saw a woman with the most terrific headache. She had taken various remedies without the slightest benefit. Her mouth was carefully examined by the roentgen-ray and we found two impacted molars. Following the extraction of these molars the pain was terrific requiring morphine in half grain doses for relief. Within three or four months her headache disappeared and has not returned.

Three years ago I saw a physician who had severe headache. He had an increase in blood sugar. A low carbohydrate diet was prescribed and his headache subsided. He continued on a low carbohydrate diet and his headache disappeared.

Claude T. Wolfe: Needless to say I have enjoyed Dr. Flexner's excellent paper.

Errors of refraction (hypermetropia and astigmatism) are responsible for headache of ocular origin to the exclusion of inflammatory diseases. An imbalance of the extrinsic muscles of the eye may also share in producing this discomfort. This type of headache usually occurs after prolonged use of the eyes and therefore is not usually present in the early morning. Frequently headaches occurring in patients whose eyes are not really diseased should always make us think of the possibility of a refractive error. A careful history of the patient's symptoms is quite necessary. This should include the locating of the pain, whether it is constant or intermittent and in the latter case whether it is associated with any definite cause or particular time of day. Headaches of ocular origin are usually localized in the frontal area near the orbit.

Certain inflammatory diseases of the eyes also cause headaches. This may be recognized by finding evidence of the inflammation, especially if the cornea or iris is involved. The exception to this may be in the prodromal stages of glaucoma. These prodromal attacks may occur late in the evening and the patient may have been seen in the early morning with the eye quite free from inflammation. Here again a careful history will enable us to arrive at a correct conclusion.

The pain in migraine, as suggested by the essayist, is usually unilateral. As a rule it is severe and of a boring type situated over the eye. Photophobia may be present and quiet in a darkened room is welcome. The pain may last throughout the entire day and be accompanied by nausea and vomiting after which it usually subsides. Why women should suffer more than men from this condition has not been determined, unless menstruation is a predisposing factor. It has been observed that the pain becomes milder and less frequent with increasing age.

The differential diagnosis of the headache caused by refractive errors and that accompanying neurasthenia is sometimes made easy by remembering that in the former it usually occurs after prolonged use of the eyes and in the latter within a very short time after the use of the eyes has begun.

The affections of the nose and the nasal accessory sinuses, which produce headache, naturally, divide themselves into non-inflammatory and inflammatory conditions. The non-inflammatory group represents the class of cases with hypertrophies of the middle turbinate bone, which press against the septum. The latter may or may no be deflected. Or there may be in this group adhesions between the inferior turbinate and the septum. These so-called pressure cases are responsible for a large number of headaches. The inflammatory group includes cases where there is pressure within the bone from acute or chronic sinusitis. Headaches of intra-nasal origin occur daily at about the same time of day, or under the same conditions and do not continue throughout the entire day. This is particularly true of headache caused by diseases of the paranasal sinuses. The diagnosis of acute inflammation of the sinuses is relatively simple and determined by intra-nasal examination, the history, transillumination, and the x-ray. The diagnosis of chronic inflammations of the nasal sinuses is also relatively easy if the inflammation involves the frontals, anterior ethmoids and maxillary sinuses. If the posterior group of cells is involved, including the posterior ethmoids and sphenoids, the problem is more difficult and the eradication of the disease is far from being a simple procedure. I might add that the paranasal sinuses are perhaps in many instances needlessly attacked by surgeons and the results quite disappointing. It would be next to impossible to determine when the ethmoid labyrinth had been completely exenterated and the scar tissue following the operation would of necessity derange the function and cause other symptoms. It is the consensus of opinion among skilful rhinologists that the ethmoid cells should be operated only with great caution. It is, therefore, quite evident that before intra-nasal surgery is attempted for the relief of headache that the surgeon should be reasonably certain that the patient will be benefited by the operation.

Sluder has called attention to the headaches due to derangement of the function of the nasal ganglion. He states that it is exposed to surface influences and inflammatory changes may be manifested by pain in and about the eye, upper jaw and teeth, temple, zygoma, occiput, neck and may extend to the shoulder. In severe attacks the arm, forearm, hand and even the finger tips may be involved. He also described a type of headache caused by the closure of the frontal sinus which he terms a vacuum headache. In this condition the symptoms are usually ocular and result as he states from the absorption of the air in the sinus which produces a negative pressure, which causes the walls to be sensitive. Since the pulley of the superior oblique is attached to the floor use of the eyes causes the floor to be pulled upon and results in discomfort.

Just a word about intracranial new growths. In this condition no symptom is more commonly seen than headache. This is unquestionably due to the increased intracranial pressure. The rate of growth and location may influence the headache and some tumors are accompanied by severe headaches and others by a milder type.

By word of emphasis let me say that every known means should be exhausted to determine the cause of headache before treatment is instituted.

Philip F. Barbour: I am very sorry I did not arrive in time to hear Dr. Flexner's paper so that my remarks are just in general.

Headache is an uncommon symptom in children. It is very unusual for a child to complain of headache as a marked disturbance. Of course the various types of meningitis are characterized by severe pain in the head. With otitis media and indefinite mastoid a child will put its hands to the side of the head but does not often complain of pain in that region. Even with such conditions as are found in otitis media purulenta with sinus thrombosis the child will make little if any complaint of pain in that location. Only by direct pressure over the antrum can the pain be localized and even this may be misleading unless the facial expression of the child is watched very closely. In intestinal toxemia, except typhoid fever, headache will not be complained of by the average child. Their expression may be dull and response to questions slow but it is not often that they complain of headache. Certainly not to the extent that an adult complains. It is very probable that very young children do not know how to tell you they have a headache. For even nasal obstruction, sinus disease and enlarged tonsils and adenoids which will cause any adult to complain of pain seem never to cause children to complain.

Eye strain is of course very frequently the cause of headache in older children as well as adults but even in very severe eyestrain these children do not complain of headaches as regularly as adults. Headache seems to be a matter of personal equation, Children do not localize pain in different parts of the head as adults do.

Probably the most common cause of headache in children is involvement of the kidneys. Many times the routine examination of the urine reveals a latent nephritis which has not been suspected by the family. This has happened so often when a child has complained of headache that I am always particularly careful to make an examination of the urine in such case. The presence of much albumin, cast or a very high degree of acidity will account for the headache though in pyelitis itself headache is not a common or suggestive symptom.

I am sorry I did not have the opportunity of hearing Dr. Flexner's complete paper.

Morris Flexner (in closing): I thank the members for their liberal discussion of the paper. One point I would like to make is that the word migraine has been used too freely. I think we should restrict the term migraine to the true condition of migraine which represents a definite syndrome.

Dr. Lucas raised the question of headache due to gall bladder disease. I have in several instnaces seen headache relieved by gall bladder drainage, and some in which no benefit occurred.

Dr. Gardner spoke of headache due to cervical arthritis. I have one patient with this type of headache under observation at present. It occurs with greater frequency perhaps than we have heretofore thought.

I refuse to be the judge in the vacuum headache controversy. I happened to have received a part of my training in St. Louis and heard much about vacuum headaches ten or twelve years ago. Of course Sluder is very enthusiastic on the subject and is a rather convincing speaker. Personally I have always thought there was much in favor of the idea of "vacuum headache."

THE PROGRESS OF MEDICINE.*

By O. R. Kidd, Paducah.

The difference between industry as its exists today and a profession, at least in the eyes of the people, is that the measure of success in industry is the financial success, while the measure of success in a profession is the service it offers humanity.

I have attended medical meetings for several years and without exception they have all been for the benefit of our patients, community, state or country.

Of course every physician is benefited by their attendance to such an extent that he is able to go back to his community with new thoughts, and a broader vision. But there is one thing that I fear has been neglected, and that is, the education of the general public regarding preventive medicine or hygiene.

The doctor of today faces the future as quite a different man from the one that practiced medicine a generation ago. Then we were kept pretty busy through a considerable part of the year treating malaria, typhoid fever, diphtheria, the summer dysenteries and other preventable diseases, and for sometime we have been working along quietly trying to stamp out these diseases, and often without the intelligent cooperation of the laity, who would be glad to help us if they only knew how. We have succeeded wonderfully in eradicating the ravages of most of the contagious and epidemic diseases, but a great many other diseases are preventable if we would only live closer to the laws of nature, or by the application of common sense.

Among these disease may be mentioned rachitis, chorea, diseases of the heart and blood vessels, cancer, mental diseases, kidney diseases, venereal diseases, scrofula, and tuberculosis. Many of which are caused by faulty metabolism, and metabolism can be maintained by proper diet and proper methods of living.

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*Read before the Southwestern Kentucky Medical Association, Paducah.

The neglect of the general practitioner of the functional diseases and our failure to cure a large percentage of these cases provides a harvest of gold for charlatans of many colors. It is the uncured cases of functional diseases that drift to them and like an endless chain, drag others into their nets.

It is time we physicians crack our ethical shells to such an extent that we can educate the general public so they will avoid these charlatans, quacks, nostrum venders, and free but harmful advisors from preying on them, and robbing them of their money, and injuring their health.

In all health movements school teachers are always ready to assist us in any way they can. Yet our school physiology and hygiene are not only incompetent, but often misleading, and they should be the most accurate book we have in our schools, for it deals with the most important subject of all, our body.

We should have a law passed requiring that our physiology and hygiene be endorsed by the State Board of Health before use in our schools.

The tragedy of the average life is that it lacks direction. It starts by chance, matures haphazardly, follows the line of least resistance, exhausts its energies in routine activities, and often ends without the realization of any splendid objective.

The human race is born, grows and develops and almost as soon as we reach full maturity physically and mentally we start down life's hill to the great beyond from where no man returneth. Some few of us may stay in what we call the prime of life a few years, but only for a short time compared with the time it takes us to mature and the time we are on the down grade.

While the lower animals, the cat, the dog, the sheep, the cow, the horse, etc., lives four times longer than they are maturing, and why don't we? In 1900 the average life was 33 years. Now it is 54, which is some improvement, but comparing us with the lower animals our average life should be at least 100 years.

Practically all human beings are born alike but under different surroundings, and theoretically all are entitled to life, health, and happiness, and without health there can be no happiness. We know, or feel, that all parents are interested in the future of their children, but too often the child is fed without any idea on the part of the parent as to what part the food plays in the development of the child, and often they are fed only the foods that suit their taste and not their bodies, and often fed things that are harmful.

Many people eat because of the habit, or the pleasure they derive from eating foods for which they have cultivated a taste, never realizing that they should eat foods to produce growth before adult life, to produce energy, to give the body heat and to build up worn out tissues.

We should teach our people the value of eating the correct foods at the proper time, the benefit of fresh air, sunshine, the proper kind of exercise and rest when needed. Improper diet and neglect are the principal causes of constipation, and faulty elimination certainly has much to do with life's expectancy. Constipation is the doctor's boog-a-boo and the patent medicine makers' bonanza. The manufacturers of laxatives spend millions of dollars annually educating people to use a drug that will cause constipation if kept up over a period of time.

And another injurious drug, (if it has any effect) is a fat reducer, and we should educate people to avoid the use of such things because if they have any effect the effects are injurious to the entire body.

The average intelligent person is naturally seeking information, but at the same time they are often misled by glaring headlines and paid advertisements of fake remedies that would never be sold on their merits.

I believe the future of medicine or health depends largely on education and we should do more to educate the general public to care as much for the inside of their bodies as they do the outside. We should teach them the value of growing strong, healthy children, so they will make better men and women.

We should teach parents to do all in their power to avoid the so-called common diseases of childhood, for every time they have a disease their little bodies are weakened in proportion to the gravity of the disease and they have less resistance to the more serious diseases later in life, and their days are shortened in proportion.

We should teach them that their bodies are made of small cells and when one cell or gland is diseased or not functioning properly it will interfere with the others and finally the entire body.

Many of our young people lack direction, they are allowed to follow the line of least resistance and often get into malicious mischief, such as destroying property, stealing and doing such things that a perfectly normal, well-directed person would not do, and often instead of growing into happy, useful citizens, they become morons, destroying the peace and property of others. It is such people as this that the crafty politicians herd together and vote as a unit. They are always ready to tell you how a business man should conduct his business and they have firm, though entirely unjustifiable ideas about the causes of diseases ,the best ways of preserving health, and ready to prescribe at a moment's notice for any known ailment.

A clogged, distorted and dominant body is often the cause of a perverted mind. While a perfectly healthy body and education is more likely to produce a sound, healthy mind, and a cheerful disposition and one that instead of continually breaking the laws of his country, will try to make his country better because of his having lived in it.

It is no wonder that so many of our shrewd criminal lawyers are so anxious to try to prove temporary insanity, brain storm, etc., when they have no other ground for defense and *sometimes we* have to admit that they are *almost* correct.

The time worn comparison of the body to a machine will always express many physiological laws, we run on "fuel," have "our capacity", our "safety limit", etc. We have a "guage" in our feelings (though we often ignore its indications) and even "blow up" like a boiler, "break down" when the demands exceed the capacity, and our expenditures get too far ahead of our income, of bodily energy.

The thoughtful person who keeps himself in trim, studies his constitution and so lives as always to have buoyant energy for his work, will, other things being equal, outstrip a competitor in business, sports, or anything else, who constantly overdraws on his physical accounts.

We should treat our bodies at least as well as we do our automobiles. If a wire is crossed or a plug clogged in our auto and it does not run as it should we at once employ a mechanic to adjust it, but when our cells, glands, teeth or tonsils bother us we often wait on nature to correct it. We should have ourselves examined occasionally to see if all our bearings are in proper order and we should never employ a cook, house boy, or any one to care for our children without first having them examined, and then not annually, but often as long as they are in our employ.

There are many who think they have health because they are not sick in bed or do not have aches and pains. But health means more than this. It means average weight for age and height, a clear complexion, happy disposition, mental alertness, not easily tired, sane attitude towards life, resistance to infections and other diseases, calmless and poise physically, mentally and spiritually.

No one can doubt that if humanity could be brought to a state of physical well being, many of our social problems would disappear, and if we could effectively rid our systems of poison our bodily vigor would be strengthened, our vision would be clearer, our judgment more accurate and our moral power increased.

It is to our profession that the world looks for large contributions toward its regeneration physically, mentally, morally and spiritually. As human beings gain in individual perfection, so will the world gain in social perfection, and we may hope to come into an era of right living and right thinking in accordance with the teaching of the Great Physician.

CHRONIC MASTOIDITIS WITH FACIAL PARALYSIS: RECOVERY FOLLOWING OPERATION.*

By Octavus Dulaney, M. D., F. A. C. S.,
Louisville.

It is not my purpose to review extensively the literature on facial paralysis of otitic origin, but to present the histories of two cases occurring in males thirty-nine years old. Both patients had bilateral aural suppuration which had persisted for several years. In each case, however, the facial paralysis was unilateral.

The principal etiological factors in both cases were large cholesteatomatous masses which had occasioned considerable bony destruction. One of my objects in reporting these cases is to elicit discussion concerning the etiology and pathology of facial paralysis of otitic origin.

The reminder may be permitted at the outset that the facial nerve and its branches are normally in rather intimate relationship with the ear and are therefore readily exposed to damage in aural diseases. It may also be well to state that in many instances facal paralysis is due to middle ear affections, or to herpes zoster of the ear, as the close proximity of the facial nerve makes it easy prey to inflammation of the labyrinth and mastoid cells.

The nerve trunk is most often exposed in the wall of the middle ear. The fallopian canal is usually protected by a bony covering, but sometimes this is absent and there exists merely a thin membrane between the nerve and the tympanic mucosa. In rare instances the sixth cranial nerve is affected by suppurative disease involving the petrous bone.

In all cases of facial paralysis the ear should certainly be examined, however slight the aural symptoms may appear. A mild form of paralysis may be produced by catarrhal inflammation, but the more serious type is of purulent origin. The paralysis caused by middle ear catarrh usually disappears in from four to six weeks provided the ear is properly treated. In suppurative cases, however, the paralysis generally persists and is only cured by surgical procedure.

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*Read before the Jefferson County Medical Society.

Prognosis: Paralysis the result of operative trauma may last from a few weeks to many months. There is usually sufficient improvement within two years, however, to render the paralysis unnoticeable to the patient. The results depend upon the amount of damage at the time of operation. Recovery has been reported wher ethe nerve trunk was completely divided.

My experience has been that a slight injury may cause more paralysis in one individual than in another. The nerve sheath, or even some of the external nerve fibers, may be damaged by trauma or disease and yet give rise to slight symptoms, the only noticeable feature being mild involvement of some of the facial muscles. Where the deeper or medullary portion of the nerve is injured, eye symptoms may also be prominent.

CASE REPORTS.

Case. I. H. W., male, white, aged 39. Examination March 9th, 1927. Chief complaint: The patient complained of bilateral aural discharge. From the right ear there was a profuse, bloody discharge of foul odor. From the left ear there was a scanty amount of extremely foul discharge. He also complained of radiating pains over the mastoid regions, headaches and vertigo. There was numbness of the left side of his face with inability to properly masticate his food.

Clinical history: The patient had the ordinary diseases of childhood. Measles in 1922. He was robust as a youth and was considered very healthy. He had mild attacks of earache during early life but no aural discharge. When about fourteen years old a grain of wheat accidentally entered his right ear, following which there was considerable discomfort. After a few days of extreme pain there occurred a spontaneous discharge from that ear which became purulent and continued for three or four weeks. Several months later the ear again began draining and continued at intervals until, at the time of examination, it had become distinctly sanguinous. The discharge was so profuse as to saturate the bed clothes. There was an excessive "pounding" or violent "noises" in both ears at intervals.

The left ear suddenly began to drain about nine years ago and has not been entirely dry since. The drainage from this ear has been scanty in amount, but extremely offensive in odor, and associated with varying degrees of pain.

During the entire time the aural manifestations have existed, there have been frequent acute exacerbations in which the symptoms (pain and discharge) have been exaggerated. The pain has been located in the postauricular areas and deep in the external auditory canals. The patient has had vertigo varying in intensity during the entire course of the infection, associated with nausea, especially during the acute exacerbations.

In 1920 the patient had an attack, of three days duration, in which he could not use his tongue, and has had similar attacks since, but of milder degree and shorter in duration. During the attack in 1920 there was complete paralysis and numbness of the tongue. For several years the patient was under the care of the late Dr. J. M. Ray and Dr. I. A. Lederman, and was frequently informed that a mastoid operation was indicated.

General physical examination: The general physical examination was essentially negative. Blood pressure 130-75, temperature 99.2°F., pulse 78, respirations 18,. Blood count: leucocytes 11,900, differential, polymorphonuclears 72%, lymphocytes 27%, mononuclears 1%. Blood Wassermann, negative.

The angle of the mouth was drawn toward the left side. There was inability to properly masticate food with the left jaw. Paresthesia of the left side of the tongue was present. Inability to expectorate caused the patient to discontinue chewing tobacco.

Examination of the ears: The right auditory canal was filled with bloody, purulent material of offensive odor. There was tenderness upon pressure over the mastoid antrum and tip, and tenderness and bulging of the posterior-superior canal wall. A large marginal perforation of the tympanum was noted in its posterior-superior quadrant. The hearing was greatly diminished. The left auditory canal contained a scanty amount of foul discharge purulent in nature. There was a small marginal perforation of the tympanum in a location similar to that of the right side. There was tenderness upon pressure over the mastoid antrum and tip, and also tenderness of the posterior-superior canal wall.

Roentgen-ray examination of the mastoids: The right mastoid showed marked sclerosis, there being no visible cells. The left mastoid showed an increase in density with only a few pneumatic cells outlined.

Diagnosis: Chronic mastoiditis, bilateral; chronic purulent otitis media, bilateral; peripheral facial palsy.

Operation, March 11th, 1927. Modified radical bilateral mastoidectomy, performed at St. Joseph's Infirmary. Findings at operation: The right mastoid antrum and tympanic cavity contained purulent material with granulations. There was much bony destruction, but no cholesteatoma. There was marked sclerosis of the left mastoid, but a few pneumatic cells were encountered. On opening the antrum a large cholesteatoma was found extending from the tympanum, filling the aditus and invading the antrum. The removal of the cholesteatomatous mass did not leave much to be done from an operative standpoint. There was extensive destruction of the bony canal wall due to the inflammatory process. The horizontal semicircular canal was examined and found apparently normal.

At the operation the pneumatic cells noted in the roentgenogram proved to be a large pocket in the mastoid tip which was filled with pus and granulations. At the anterior inner border of the process there was marked destruction in the region of the facial nerve, which perhaps accounted for the inflammation of the nerve rather than the cholesteatoma.

Postoperative treatment: The periosteum was partially closed with chromic catgut and the skin with plain catgut. Iodoform gauze packing was inserted. The external bandages were changed in twenty-four hours and the packing at the end of the second day. The packing and dressings were then changed every other day over a period of six weeks. The external auditory canals were cleansed with a solution of boric acid, phenol, one per cent iodine, and alcohol.

Follow-up record: The patient was examined January 21st, 1928. The scar on each side is small in comparison with the amount of bony structure removed. The external auditory canals are apparently dry and healthy. The drum membranes are healed, but are thickened and slightly retracted and show scars from the former perforations. Tympanic inflations, in which the impression was entirely against the drum membranes, were made without difficulty. A watch tick can be heard in the right ear by contact, and a whispered voice at a distance of five feet. The left ear presents normal hearing. The patient has gained about ten pounds in weight, and is entirely free from headaches and aural pains. He states that he is in better health than he has known in twenty yaers.

Case II. J. S. J., male, white, aged 39. Examination July 15th, 1927. Chief complaint: The patient complained of a purulent, bilateral aural discharge having a foul odor, associated with headaches, aural pains, vertigo, and inability to move the left side of his face.

Clinical history: During his entire life there had been impairment in hearing of the left ear. Since infancy there had been a foul smelling, thick, purulent, left aural discharge; and as far backward as he could remember there has been a sense of fullness, roaring, or tinnitus, in his left ear. At intervals there was an excessive soreness and itching of the left auditory canal. For the last two years a discharge had been especially noted from the right ear. The hearing had been gradually getting worse until, at the time of examination, the patient could hear only a loud speaking voice. He had frequent and severe general headaches, chiefly in the temporal and postauricular areas. There had been a noticeable impairment in his memory and ability to concentrate associated with extreme nervousness.

There was an extensive drawing of the angle of the mouth toward the right. He could not chew food with the left jaw, and noticed a marked accumulation of food particles on that side. He could not speak as distinctly as in the past. He was apparently unable to control his tongue. His previous health had been good. He had the ordinary diseases of childhood, no operations nor serious illnesses. His appetite was poor and he did not sleep well. There had been frequent exacerbations during which the aural pain, discharge and vertigo had been exaggerated. The patient had noticed his mouth being drawn to the right side for about a year.

General physical examination: The patient was of small stature and apparently anemic and nervous. The general physical examination was negative, with the exception of cervical adenitis. Blood pressure 108-80, temperature 101°F., pulse 96. Blood Wassermann, negative.

The angle of the mouth was drawn toward the right. The tongue deviated to the right when protruded. The left eye could be closed with difficulty. The patient could not pucker his lips, nor could be frown with the left side of the forehead. There was flabbiness of the muscles of left side of face.

Examination of the ears: There was bilateral tenderness upon deep pressure over the mastoid antrum and tip. The external auditory canals were reddened and irritated due to the discharge. Both canals were filled with foul material. There was tenderness of the posterior-superior canal walls. Both ear drums showed marginal perforations. The hearing was markedly impaired, especially in the left ear.

Roentgen-ray examination of the mastoids: There was marked sclerosis of both mastoids, there being no cells visible.

Diagnosis: Chronic otitis media, bilateral; chronic mastoiditis, bilateral; facial paralysis, left.

Operation, July 23rd, 1927. Bilateral mastoidectomy, at Kentucky Baptist Hospital. A modified radical right mastoidectomy was performed with no unusual findings. A similar procedure was then executed on the left side. The antrum was opened in the usual manner and was found to be small, infantile, sclerosed, and contained cholesterin and granulations. The aditus and tympanic cavities were exposed. The tympanic cavity was filled with a thick, cholesteatomatous mass, soft in consistency. There was marked destruction of the bony tympanic wall. After carefully removing the cholesteatomatous mass, the facial nerve was noticed to be extensively exposed and clearly unhealthy, undoubtedly accounting for the paralysis.

Postoperative treatment: The periosteum was partially closed with chromic catgut and the skin with plain catgut. Iodoform gauze packing was inserted. The external bandages were changed in twenty-four hours, and the packing at the end of the second day. The packing and dressings were then changed every other day over a period of six weeks. The external auditory canals were cleansed with a solution of boric acid, phenol, one per cent iodine, and alcohol.

Follow-up record: The patient was examined January 21st, 1928. There is complete healing of the postauricular incisions. The perforations in the drum membranes have entirely healed as proven by inflation at which time no air escapes. The eustachian tubes inflate without any difficulty. There has been complete cessation of drainage. A watch tick can be heard in the right ear by contact, and at a distance of four inches in the left ear.

DISCUSSION

Wm. E. Gardner: Dr. Dulaney called me Saturday (January 21st) requesting that I come to his office and examine the first patient he has presented. The man still showed some atrophy of the muscles of the left side of his face, although Dr. Dulaney said there had been considerable improvement. Even at the time of operation, the condition was perhaps more one of atrophy with drawing of the face toward the left side, than the typical "sagging" ordinarily seen in paralysis of the seventh nerve. In typical peripheral paralysis there usually occurs paralysis of all branches of the nerve. In that event the patient is unable to close his eye or wrinkle his forehead on the corresponding side. In this case paralysis did not involve the upper branch as the man could close his eye and wrinkle his forehead, although he had complained of weakness of that side of the face and difficulty in mastication. The left side of the face still appears slightly atrophied, but evidently there was not complete paralysis involving all branches of the nerve as one might expect to occur in disease of the middle ear. Possibly irritation or edema due to the inflammatory process of the ear caused only involvement of the lower branchs of the nerve. This might also occur from the presence of an embolus or thrombosis in the subcortical area without the production of complete paralysis. Moreover, the case may now appear atypical because the patient came to operation after the original paralysis had disappeared to some extent, the remaining atrophy being due to impairment of nerve function.

The second patient evidently had typical peripheral paralysis of the seventh nerve, since he was unable to close his eye. The so-called Bell's palsy may develop rather suddenly without known etiology except a history of exposure, a slight cold, or rheumatic infection. In such cases the patients usually recover spontaneously within three to five months, yet they require some local treatment, attention to the general nutrition, etc., and after the local inflammatory process has subsided galvanism is useful to maintain nutrition of the muscles until the nerve regains its tonicity. In this case, however, the facial paralysis was caused by infection of the middle ear and mastoid and was evidently relieved by operation. Other common causes are trauma and syphilis. In syphilitic paralysis the central nucleus is usually involved with paralysis of all branches of the nerve, or the lesion may be supranuclear with involvement of only the lower branches.

I congratulate Dr. Dulaney upon the favorable outcome of both of these cases, as the patients evidently had very serious ear involvement in addition to the facial paralysis, the relief of the middle ear disease being, after all, the most important thing that was accomplished in helping to restore these patients to good health. The improvement of the facial paralysis, in both instances, following the operation, was incidental and of secondary importance.

Shelton Watkins: I wish to emphasize what Dr. Gardner has said about the first case reported by Dr. Dulaney; namely, that the paralysis was very like due to some other cause than a lesion in the mastoid. Facial paralysis due to mastoiditis is a peripheral paralysis and all branches of the nerve are involved. Partial paralysis is nearly always due to some intracranial lesion.

Facial paralysis of aural origin may be due to both mild and serious conditions. It is at times associated with an otitis media, and even catarrhal otitis media. Involvement of the nerve is supposed to be due to a dehiscence in the aqueductus Fallopii, in which case the nerve lies next to the mucous membrane of the middle ear. The only treatment necessary is that for the otitis media. The paralysis usually disappears in from two or three weeks to several months. I have seen five or six cases of facial paralysis due to otitis media, all of which subsided within several weeks without any treatment other than for the otitis.

Much more serious are those cases that occur during the course of a chronic suppurative otitis media, many of which are complicated by cholesteatoma. The development of facial paralysis in these cases is well recognized by otologists as a danger signal, which means that the infection is spreading and there is danger of involvement of the labyrinth. A suppurative labyrinthitis practically always develops into a meningitis. Paralysis of the seventh nerve may occur in tuberculosis of the middle ear and mastoid; and again it is recognized as a danger symptom, because of the likelihood of involvement of the labyrinth and meninges. It is a well established fact, wherever facial paralysis occurs during the course of a chronic suppuration of the middle ear, that the radical mastoidectomy is indicated. In this operation the mastoid is cleaned out, the cavity and middle ear made into one by removing the posterior bony wall of the external ear, and what remains of the malleus, incus and the tympanic membrane are removed. In this way the best possible drainage is obtained. No effort to secure a cosmetic result should be allowed to interfere with a thorough operation, because the patient's life is in danger. The conservative operation does not give as good drainage as the radical and, therefore, does not offer the best chance of relieving the condition.

Abscess of the cerebellum and of the tempero-sphenoidal lobe may, in very rare cases, cause facial paralysis, due to pressure on the nerve.

May I ask Dr. Dulaney a question? Dr. Watkins: How long had the facial paralysis existed in each case before the mastoidectomy was performed?"

Dr. Dulaney: "A long time."

Dr. Watkins: "Was it as long as a year in each case?"

Dr. Dulaney: "Yes, and longer."

(Dr. Watkins continuing his discussion).

It seems most remarkable to me that facial paralysis due to cholesteatoma and of over a year's duration could be cured. Cholesteatomas are most destructive, to even bone, and in the ear and mastoid are always associated with a foul infection. One would expect to find the nerve completely destroyed and replaced by a putrid mass. Also, it is hard to understand, if these cases of facial paralysis were secondary to the mastoid condition, why more serious complications, such as labyrinthitis and meningitis, did not develop soon after the paralysis.

W. A. Jenkins: There seems to be some misunderstanding among the gentlemen about what happens in ordinary Bell's palsy. Some of you are under the impression that early in the case the face draws to the side opposite to the affected on, and others of you say that the face is drawn to the affected side.

In typical facial paralysis there is a paralysis of the seventh nerve where all three of the peripheral branches are involved. There is no drawing on either side. In acute cases the paralyzed side is flaccid and there is no response to motor impulses at all, such as occurs in laughter, moving of the lip, elevating the brow, frowning, closing the eye, etc. And when the patient attempts to carry out any of these motions there is failure of response on the paralyzed side and the well side, acting in an unopposed manner, produces the peculiar appearance of drawing which we notice.

If this type of paralysis remains uncured and further damage is inflicted upon the nerve involved, then after months or years we do begin to have tension and the paralyzed side may become permanently drawn. Some of you will doubtless remember a fairly prominent physician who had a chronic uncured Bell's palsy. He had had it for a long number of years. Permanent damage was done to the lower branch of the seventh nerve in its peripheral portion. This man's mouth, as you will recall, was permanently drawn on the affected side. It is well to remember that it is only after the condition has existed for a long, long time that contraction occurs. Then the muscles on the paralyzed side begin to draw, but there is no drawing or contraction of the muscles whatever in the early stages of this condition.

Octavus Dulaney (in closing): I have little to say in closing. I want to thank the gentlemen who have discussed the report for the explanations made concerning the conditions observed in the first case. The patient had paresthesia of the left side of his face and tongue extending over a period of several years, with pain and vertigo which were increased during acute exacerbations. For six or seven years he was unable to masticate his food on the left side, nor was he able to expectorate, because of involvement of that side of the face. He was operated upon about a year ago, since which time improvement has been marked, he can now masticate food with the left jaw and can also expectorate like anyone else. There is still a slight drawing of the mouth toward the left side.

Dr. Jenkins misunderstood me if he is under the impression I said this was a case of acute Bell's palsy. The condition had existed for a long time, and that is the reason there was some contraction of the muscles on the left side.

DIGITALIS: A REVIEW OF PRESENT DAY KNOWLEDGE.

By Leon L. Solomon, Louisville.

Despite much investigation, this prince of heart remedies does not rest on a firm foundation, necessitating careful discrimination on the part of the physician in the selection of a potent, dependable product, if effect is to be obtained from the administration of the drug.

Were the question asked, "What single agent in the entire range of the Materia Medica is most useful, therefore most important?" an answer might be evasively hedged with the remark, "No one single medicament deserves these distinctions. Totally different effects produced by widely differing drugs and totally different services rendered under equally important circumstances by a number of medicinal substances will not permit of the singling out of any one as most useful or most important."

Indeed, any mode of comparison between several of the more important medicinal agents in its very nature precludes allotting highest honor for outstanding service to any given one, for the same reason that no authority could say man is more important to the human family than woman, or that the male of a species is of greater importance to that species than the female, or vice versa.

Were the question however asked, "What three, four or five drugs are most important?" the answer might be ventured with less likelihood that debate would change a final score. Surely in any such comparison, digitalis would be among the list, opium, quinine, mercury and possibly epsom salts making up the remaining members of the group.

Recently, in a brief paper, the writer said, "If it be true there can be no proper concept of human medicine and no proper approach to the correcting of disease, except the physician possess a knowledge of the function of the human engine under normal and abnormal load, then it will follow there must also be possessed an intimate knowledge of digitalis." And because of new and important instruments of precision for the study of the heart, whereby the action of digitalis has been more difinitely accounted for, there has resulted a fresh impetus to considerations of the heart and a more detailed study of the remedies influencing it.

This explains why the literature of digitalis has been so greatly added to within the last few years. A review of the drug is therefore attempted by the writer at this time, in the hope that a better understanding be had of present day knowledge. At the outset, it may be stated that some things regarding this prince of heart remedies, formerly accepted by both physician and pharmacologist, have recently been proven but partly correct, while other things, previously accepted as both botanically true and physiologically correct have been found incorrect. Various phases of the subject will be considered in this paper.

History: Credit for the introduction of digitalis into the Materia Medica is due William Withering, an Englishman, who described it in 1775. As far back at the Tenth Century, however, references are found to the employment of Foxglove by the inhabitants of Great Britain. An old woman of Dr. Withering's acquaintance is said to have first told him of cures effected by her in dropsies of long standing. Whether she employed the leaves or an infusion—a so-called cold tea, commonly used in England at that time—we are not informed.

Synonyms: Digitalis is known by the following names: Foxglove, Purple Foxglove, Digitalis purpurea Linne, Flop-dock, Fairy Cap, Bells, Fingers, Lady's Glove, Thimbles, Cottagers, Throat-wort.

Habitat: The plant grows wild in the temperate parts of Europe blooming and flowering in mid-summer; occasionally a perennial, it is generall a biennial. Widely cultivated in various parts of the world both for purpose of ornamentation and for its medicinal value, it has become naturalized in several sections of the United States.

Part of Plant Used: Though the seed contains more of the active principles, keeps better and is less likely to suffer in drying, it is infrequently employed to yield its contained glucosides, the leaf being most commonly used all over the world. According to the experiments of Hirtz, digitalis seeds are ten times more potent than the leaves.

Varieties: Miller and Baker, in the Journal American Pharmaceutical Association, March, 1914, describe twenty-three varieties of digitalis, each possessing similar action. Of all of these, Digitalis Thapsi L., known commercially as Spanish Digitalis, surpasses in power.

Commercial Supply: The commercial supply of digitalis is chiefly obtained from home-grown plants and from the German market.

Time for Collecting: Formerly it was common practice to collect the leaf in the second year of plant growth, during the midsummer flowering season. At the present time, a number of investigators, including Baker, Miller, Carr, Sharp and others insist there is no difference between the potency of leaves of one year plants and those two years old. Hot house plants do not seem to develop greater potency than plants cultivated out of doors; in fact, the wild plant is said to possess as much medicinal value as the most highly cultivated Foxglove.

METHOD OF CURING AND PRESERVING OF THE LEAF: Of the several methods in use, it is agreed most importance attaches to proper drying and proper storage of Digitalis. According to Haskell and Miller, the temperature at which the leaf is dried should be below 120 degrees C., others recommending it should not exceed 90 degrees. Howsoever dried, it is essential that during its storage it be kept thoroughly dry. For this purpose, it has been ordered by some that the container be kept dry by the use of burnt lime. Though properly collected from potent plants, the leaf deteriorates if allowed to become moist. When properly cared for during a year's storage, the loss is negligible, according to Haskell and Miller (J. A. Ph. A., 1914); according to others, if properly stored potency is maintained for several years. The British Pharmacopoeia requires that leaves be collected from plants just beginning to flower, that they be thoroughly dried at a low temperature and kept dry in air-tight, well filled containers.

ODOR: Fresh leaves possessing little or no odor, develop a characteristic, somewhat narcotic smell during the drying process; well dried leaves, rubbed into the palm of the hand, have a characteristic odor.

TASTE: Peculiarly bitter.

COLOR: The dried leaf is a dull, palish green, becoming deep green when powdered.

DIGITALIS STUDIES: For almost one hundred years, the drug was given empirically, the literature containing but few references to any study of its chemistry or pharmacology. First referred to in 1775 by Withering, not until 1874 was an intensive study undertaken; then Schmiedeberg published the results of his labors, since which time and up to the present, German, French, English, American, Italian and other investigators have sporadically busied themselves in diligent research.

LITERATURE: Besides Schmiedeberg, whose investigation of Digitalis attracted worldwide attention between the years 1874-1882, the literature contains the names of McGill, 1893; Kiliani, 1895-99 and again in 1914; Keller, 1897. About the time of Kiliani and Keller's labors, Houghton of the Parke-Davis Laboratory was busy with his searching investigation of the drug, published in 1898, adding greatly to its comprehension by devising his biologic means of assay with the frog. Kraft in 1911 and Berry in 1915 by their studies made significant additions. During the last decade, the literature has been considerably enlarged, chiefly along clinical lines.

INGREDIENTS: The main ingredients of Digitalis, upon which the leaf or the seed depends for its brilliant influence, are certain so-called active principles, belonging to the glucoside group. There is also present: Saponins, a volatile oil resembling valerianic acid, fatty matter, a fixed acid called digitalic acid, a red coloring substance, a narcotic empyreumatic oil, chlorophyl, alubmin, starch, sugar, gum, lignin, salts of potassium and lime ,acid potassium oxalate and a certain amount of ash.

GLUCOSIDES: Two groups are known, (a) those responsible for the physiological activity of the drug and (b) those described as saponins. Formerly taught to his medical classes by the writer, during the period of 1898 to 1908, in the order of their then importance, the glucosides were named as follows: Digitoxin, Digitaline, Digitalinum Verum, Digitalin, Digitalein. Then as now, Digitonin was considered a useless saponin, Digitin being accounted an impure Digitonin.

In the order of their accepted activity today, the Digitalis glucosides are: Digitoxin, Digitalin, (Kiliani), Digitalein and Gitalin, the latter being the equivalent of a substance known as Verodigen. Of these several active principles, Digitoxin is at once the most important, not only because it is the most fixed and the least readily decomposable, but because of its potency. Digitoxin is acknowledged the most powerful of any of the Digitalis glucosides. Digitalein is the most decomposable, Digitalin standing midway between the two in its decomposability.

STANDARDIZATION: Despite the fact that there has been much investigation of the active principles in the Digitalis leaf (and seed), as previously stated, our knowledge of the contained glucosides does not rest on a satisfactory foundation. For example, the word Digitalin, as referred to in the literature may mean several distinctly different substances—there is Kiliani's Digitalin, Homolle's Digitalin, Nativelle's Digitalin, German Digitalin (Merck Digitalin).

DESCRIPTION OF DIGITALINS AND DOSAGE: The Homolle preparation is an amorphous powder, otherwise known as French Digitalin or Digitalinum Gallicum and sometimes called Digitaline Choloroformique. The usual dose of Homolle's Digitalin is 1-260 grain, maximum dose 1-40 grain. The Homolle Digitalin and Kiliani's Digitalin are possibly identical. In contradistinction to the Digitalinum Germanicum, the Homolle and the Kiliani preparations are sometimes referred to as true Digitalins. The dose of Digitalinum Germanicum is set down as 1-10 grain to 1-2 grain. Nativelle's product is crystalline, otherwise known as Digitalin Cristallisee. German Digitalin is usually a yellowish-white amorphous powder; it is considered by several investigators to be no more than a concentrated extract, said to be obtained chiefly from Digitalis seed. Certain investigators claim that German Digitalin contains more than 50% of the saponin, Digitonin, that it contains only 5 or 6% of the so-called Kiliani Digitalin, the balance of the product being made up of the other Digitalis glucosides. Containing a large amount of Digitonin, German Digitalin possesses less activity than any of the other Digitalins. According to Kiliani, Digitalinum Verum is a white amorphous powder, remaining unchanged at a heat of 200 degrees C., very sparingly soluble in ether or chloroform.

The Saponin Group: Among the saponin group of glucosides found in Digitalis, which have no action on the heart, besides Digitonin, certain investigators claim to have isolated Gitonin and Digito-Flavone, the latter sometimes called Luteolin. The status of a substance bearing the name Digitophyllin seems wholly unsettled.

It is easily seen that because of the many differences of opinion held by different investigators concerning the Digitalis glucosides, confusion must necessarily result. Kraft, for example, looks upon the Digitalein of Schmiedeberg as an impure Gitalin; in its pure state he says Digitalein should be an amorphous white powder. Furthermore he charges that a substance, described as Digit Saponin is present in some of the commercial Digitalins ,accounting for the inefficiacy of such preparations.

And as further evidence of the confused state of our knowledge, Kiliani doubts the chemical existence of any such substance as Gitalin. He claims that the seeds of Digitalis do not contain any Digitoxin whatsoever, while Keller, disputing this pronouncement, asserts he has found a small quantity in the seeds. A dispute arose between Schmiedeberg, who contended that Digitoxin was not a glucoside, while Kiliani asserted he had split it up into a sugar, which he named Digitoxose.

Assay: Numerous efforts have been made to assay Digitalis chemically; they have all failed. For purpose of standardization, it was found necessary to resort to biologic test; in the sense that chemical assay is accurate, the biological standardization of Digitalis is far from perfect and cannot be accepted as final.

Method of Assay: In common use is frog and cat method. The guinea-pig has also been used. Warm blooded animals are preferred by certain investigators, who claim greater accuracy, therefore more dependability, also less time. The chief objection to the use of the frog is the fact that there must be a difference between the effect of a drug on a cold blooded animal and its effect on man. Besides the frog, gold fish and turtles have occasionally been employed.

Animal Susceptibility and Idiosyncrasy: All agree whether the frog, the cat or the guinea-pig be used, there are certain variations in susceptibility, due to seasons of the year and to other unrecognized causes. These must be taken seriously into account in the final check-up of the preparation under test. With frogs, differences have not only been found in different species but also in the same species at different seasons of the year. In the springtime, frogs apparently possess twice the resistance to Digitalis, possibly due to difference in temperature, possibly due to nutritional state. The guinea pig is said to show similar seasonal susceptibility variations.

. Since none of the methods of standardization by biological assay can be recorded as dependable, until a more precise method is evolved, the present procedure will serve the purpose to avoid inert or partially inert preparations being purveyed for medicinal use.

It having been suggested that from 60 to 75% of the activity of Digitalis results from its contained Digitoxin, it was conceived that the amount of this glucoside in the leaf might be used as an index to the potency of the plant. For the reason, however, that there are other important constituents in the leaf, it is apparent the method cannot be accepted.

.. Inefficiency of Both Cat and Frog Methods: The inefficacy of both cat method and frog method was proven by the labors of a Committee appointed by the American Drug Manufacturers Association to make a comparative study. The findings of these experienced pharmacologists showed wide variations, the different workers reporting terminal results wholly at variance, even where tinctures of known value were being tested. As between the one hour frog method and the twelve hour method, varying results also were seen ,while the cat method by comparison with the frog method yielded such lack of uniformity as to be astounding.

U. S. Pharmacopoeia as Official Guide: The one hour frog method as a standard for assaying Digitalis was made optional in U. S.

Pharmacopoeia IX, becoming official in U. S. Pharmacopoeia X.

EXPLANATION OF THE TEST: The test has for its purpose the determining of the dose of Digitalis which will bring the heart of a standard size frog to systolic standstill in one hour's time. There is naturally required in the performance of this test the same stringent rules which govern any quantitative chemical assay, namely, all weights and measures must be accurately determined; frogs must be of uniform size and uniform in species; they must of course be in healthy condition.

TECHNIQUE: An hour before test, frogs are removed from tanks where they have previously been kept in a cool room, say at a temperature not above 15 degrees C. Each frog, carefully weighed to within 1-10 gram, is placed in an individual wire cage, which is immersed in a tank containing about 1-2 inch water, to be kept during the entire procedure at a uniform temperature of 20 degrees. All of this care because susceptibility and idiosyncrasy vary considerably at different temperatures. If fluid extract or tincture is used, dilute with water so as to get the volume dose, dependent upon the body weight, not exceeding 0.015 mill per gram of body weight may be used; the alcoholic strength of the preparation must not exceed 20%.

The dose, measured into a conical glass by means of a finely graduated pipette, is injected through the anterior lymph sac by means of pipette, drawn out to a fine point. The frog, held in one hand on its back, its mouth opened with the point of the pipette, care must be taken to avoid the tongue and also to avoid puncturing the skin; through the floor of the mouth, the point of the pipette punctures the lymph sac, gravity carrying the solution into the sac; sometimes it is necessary to gently blow against the fluid, care being taken not to introduce air. With the completion of this last step, the frog is ready to be returned to its cage for final observation.

At the end of one hour, each frog is pithed —both brain and cord—the heart being exposed for examination. Provided the reaction is as it should be, the auricle is found to be widely dilated, the ventricle in a state of positive systolic standstill. Though mechanical stimulation may produce feeble contractions in the auricles and a few localized contractions in the ventricle, the perfect reaction does not permit of the occurring of any general contractions.

RECHECK: Since frogs differ so considerably in susceptibility to the members of the Digitalis group, not only at different seasons of the year, but otherwise, after primary assay is completed a second series of frogs are injected, followed by a third and sometimes even by a fourth series, before the assay may be considered finished.

The guinea pig method consists in finding a minimum lethal dose. To a group of accurately weighed pigs, there is administered hypodermatically ascending doses of the preparation to be assayed. The end point in the test is the determining of the smallest dose which will kill the guinea pig within twenty-four hours.

Though in a paper of this character, the many details which have been enumerated are not commonly reviewed, in this communication they have been purposely included in order that the reader may know the multitude of difficulties, attaching to biologic assay of Digitalis. The author is convinced that too little credit has heretofore been given to the producer of the standardized preparation of Digitalis for the pains and the trouble which he has taken in the perfecting of his product, before he offers it to the profession.

Accustomed as we are to demand the best, we are inclined to take for granted the fact that someway, somehow, our requirements will be met. We are oblivious of multitudinous difficulties, some of which, all but insurmountable, stand in the way of the pharmacologist. In the standardization of Digitalis, as may easily be seen by what has been stated in this paper, the pharmaceutical chemist deserves the warmest commendation when he places in our hands a product upon which we can depend.

PHYSIOLOGICAL ACTION: The action of Digitalis was fairly well understood long before any effort had been made to standardize the drug; it was in good measure understood even before its chemistry or pharmacy had been studied. We knew that Digitalis slowed the pulse, the result being understood to come about from stimulation of cardiac inhibition; we knew that large doses produced considerable slowing of the heart; we knew that such doses materially increased the vigor of heart contractions and we thought we knew that blood pressure was measurably increased, earlier writers emphasizing this supposed result from Digitalis administration.

In latter years, we have learned that, except the dose be unnecessarily and improperly large, blood pressure is not affected, the main reason therefor probably being the reduction in the pulse rate . Today we understand that the slowing of the pulse is partly due to delayed conduction in the heart muscle, partly due to reduction in impulses arising in the node, both effects in the normal animal seeming to result through the inhibitory mechanism. When, as is found in certain heart states, the nutritional condition of the muscle is poor, according to Cushny, conduction across the auriculo-ventricular bundle may be greatly impeded or even entirely blocked, the resultant effect being wholly different from that which is expected under ordinary circumstances.

DIURESIS: That the output of urine following the administration of Digitalis will, in many instances be increased is pretty well accepted. The *modus operandi* of its production is not, however, definitely understood. The majority of observers believe it is the result of an improved *vis a tergo.* In addition to this effect, the reaction of the renal artery to Digitalis is in all probability a factor, some claiming that dilatation of the kidney blood vessels brings about the diuresis, through a larger entry of blood, with consequent increased secretion, others asserting, that, what actually occurs, is contraction in the arterial supply of the kidney. As an argument against those who believe diuresis following Digitalis medication results from contraction of renal arteries, with increased circulatory pressure in the kidney, we have Joseph's declaration, made in 1913, that any contraction of the renal artery resulting from Digitalis was less than contraction produced by the drug on other blood vessels.

There is unquestionably some pressor effect from Digitalis, resulting in vascular constriction which is probably overcome by the reduction in the pulse rate. Poisonous doses of Digitalis raise the blood pressure through increasing the contraction of the heart muscle and through constricting the lumen of vessels.

HEART IRREGULARITY RESULTING FROM TOXIC DOSE: The most common irregularity is known as extra systole. It results from an increase of irritability in the heart muscle, whereby an extra contraction interrupts the diastole relaxation. In the so-called *pulsus bigeminus,* sometimes incorrectly described as dicrotic pulse, these extra systoles occur with regularity, marking time with alternate pulse beats.

TIME REQUIRED TO OBTAIN DIGITALIS EFFECT: It is important to know how quickly an effect from any remedy may be obtained. If opium required hours before its effect were manifest in the control of pain, it would naturally follow that opium would be of little value in the control of pain. Those who choose to administer digitalis as a means of combatting sudden heart failure will probably be surprised,—I am sure they will be disappointed, when informed that, for such purpose, digitalis has litle, if any value. It's administration to meet sudden, critical heart conditions, since it can result in no good, where death impends from cardiac failure, must bring the drug into unwarranted disrepute. And such effect is not dependent upon the route of administration, though it is in considerable measure dependent upon the size of the dose.

It has been amply proven that, whether digitalis be administered by the mouth, per rectum or by intravenous route, the rapidity of its action is about the same. Some observers believe the effect from a single dose is not to be noted in less than three to four hours, the maximum not being reached earlier than six to seven hours. Others claim a single dose, administered by the mouth, will not yield its maximum effect under fifteen, twenty or more hours and that the effect may then last for several days, some even believing it may last as long as six to nine days.

SLOWNESS OF ACTION: In any event, Digitalis is so slow in its action that it can hardly be o fservice in a threatened circulatory failure. Given by the mouth, the condition for which it is prescribed will likely terminate in death or recovery long before the Digitalis might exert any influcnce. It is a mistake to believe the introduction of Digitalis hypodermatically materially increases the promptness of its action. Authorities are therefore of one mind, namely, that, as a remedy in acute circulatory failure, Digitalis is far too slow in its action to be the remedy of choice.

USES: The chief employment of Digtalis is as a heart tonic in subacute and chronic heart conditions. For reasons, explained, it has also a wide range of usefulness as a diuretic.

TOXICITY: A preparation of Digitalis that does not nauseate is not likely to be very potent, slight nausea being a common accompaniment of Digitalis medication. Hatcher and Weiss in 1922 declared that the nausea is produced by a reflex exerted on the vomiting center in the medulla. When Digitalis is administered in excessive dose, unmistakable symptoms quickly develop; they are nausea, followed by vomiting, slowing of the pulse, possibly forty or less per minute, muscular weakness becoming extreme, disturbance of vision, color sense disturbed. If the patient be at rest or in the recumbent posture, activity of any sort, as rising from the sitting position or changing the recumbent posture will result in considerable increase in pulse rate; a very slow pulse becomes a rapid pulse, with marked irregularity,—*pulsus bigeminus.*

Later, the movement of the heart having become excessively rapid, marked irregularity develops, diastole is incomplete, death resulting in systolic spasm in the cold blooded animal, while in man and other warm blooded creatures, prior to death, the muscle relaxes, a state of fibrillation supervening.

Caution is therefore necessary where Digitalis is being given. With the first appearance of nausea, the dose had best be reduced or omitted; where a pulse rate reaches fifty-five or sixty, the further administration of Digitalis may become dangerous. These common signs, easily recognized by the practitioner, are real danger signals. With equal emphasis, it may be stated the appearance of premature contractions, coupled rhythm or other types of arhythmia are signs betokening danger.

DIGITALIS LUTEA: Preparations from the leaf of Digitalis Lutea have recently been brought to the attention of the profession. Flowers from this variety of Digitalis differ from the Digitalis purpurea in that they are lemon yellow in color; the leaf also differs in that it is of thinner texture and narrower in shape. The claim is made that the potency of the lutea leaves is equal to the potency of the best leaves obtained from the best grades of the purpurea variety. In papers by Morris and by White (Archives of Internal Medicine, June 1918 and Journal-Lancet for March 15th, 1917), the claim is made that digitalization is available with the lutea plant with very much less likelihood of nausea than with Digitalis purpurea and that the drug may be administered up to the production of *pulsus bigeminus* without causing nausea. Preparations of this plant are available on the market under the trade name Digilutea, in capsules, dose 1 grain, and in tincture, dose 10 minims.

METHOD OF ADMINISTRATION: Ordinarily Digitalis had best be given by mouth; its bitter taste and its peculiar narcotic odor are occasionally objected to. Not infrequently it nauseates, for which reason it were best to administer it on full stomach. Because of the irritation produced and the consequent pain which follows subcutaneous or intramuscular injection, it is difficult to make the patient submit to this method; soon he demurs and, unless change is made, refuses to allow further injections.

INTRAVENOUS METHOD: This has not become popular for the reason that material increase in rapidity of action is not obtainable when the drug is thrown into the blood stream.

RECTAL ADMINISTRATION OF DIGITALIS: Though it is not generally known, Digitalis may be given per rectum, the rapidity of action and certainty of effect making this route practically as good as administration per orem; this is especially true for the single dose. The writer has not infrequently obtained splendid results from rectal administration in patients whose nausea, following its administration by mouth, made further dosage impossible; he has also administered it per rectum in instances, where, because of a mental state, administration by mouth was difficult or impossible; especially does he recommend the rectal route following surgery, where nothing may be given by mouth.

It is not practicable to frequently repeat the rectal dose, because the rectum becomes intolerant not only of the Digitalis but intolerant of manipulation. It has been my observation, that not more than three or four doses may be given before intolerance develops. So administered, the dose is repeated within twenty-four hours or possibly within forty-eight or seventy-two hours, maintenance effect being meanwhile procured by administration intravenously or per orem.

The experience of a number of users has proven the action of a solution of Digitalis thrown into the rectum is about as rapid as when administered by mouth, absorption taking place through the mesenteric and portal veins. Experiments conducted by Levy at the Presbyterian Hospital, New York, recorded in the Archives of Internal Medicine, June, 1924, indicate that "the lapse of time, necessary for the occurrence of initial and maximal effects on the heart rate, when Digitalis is given by the mouth, closely approximates that required for the occurrence of similar effects, when the drug is given by rectum."

First experiments with Digitalis per rectum were carried out with a tincture; this was found to be too irritating. The necessity to dilute the tincture with a large quantity of water made the bulk objectionable, the bowel throwing the solution back, before absorption had occurred. To avoid this difficulty, a preparation was devised by Merck known as Digitan Rectal Solution, marketed in ampoules of 15 cc, each cc. being equivalent to 1 1-2 grains of Digitalis leaf; this has proven an admirable addition to our armamentarium.

DR. LEVY'S TECHNIQUE: The lower bowel is thoroughly washed out with distilled water or normal salt solution in preparation for the dose. When this solution has been returned, sufficient time should elapse for the bowel to become quiet, otherwise the injected solution will likely be lost. It being borne in mind that the purpose of rectal Digitalis is not to supplant oral method but rather to obtain a Digitalis effect from a single large dose, comparable to effect, obtained from mouth dose, the dose, per rectum, should be large, namely, from 8 to 15 cc. of Merck Rectal Solution.

Such quantity is administered as follows: A small size rectal catheter is passed into the rectum to a depth of about six inches; the funnel is held about one foot above anal orifice—my observation has been, if the funnel is held too high, the flow is too rapid, resulting in difficulty of retention. The solution is allowed to run in by gravity, after which about 25 cc. tap water is passed into the bowel to wash the Digitalis through. The tube is clamped and left in position for half hour, when it is withdrawn, patient being instructed to resist bowel movement for some hours.

Absorption of Digitalis by the Skin—Digitalis Poultices: That the skin will absorb Digitalis and that the full physiological activity of the drug may be thus procured was known to our forefathers and frequently made use of. For this purpose, the poultice was usually applied over the back and loins. In the dropsies, the splendid result from application of Digitalis poultices is among the outstading influences of Digitalis therapy of bygone times.

Infusion of Digitalis: Formerly it was very common to administer Digitalis as an infusion. The clinician of twenty-five or thirty years ago looked upon the infusion as one of the best, if not the best of the several preparations at his command. He believed he could do better through the employment of an infusion in his pneumonia patient in his case of sepsis and in delirium tremens than with any other preparation.

Extemporaneous Preparation of Infusion Digitalis: In this connection, it is interesting to note that the Upjohn Company are marketing a tablet for the extemporaneous preparation of Infustion Digitalis, the literature accompanying their "Diginfuse Package" states the leaf from which the tablet is made has been standardized by the official one hou rfrog method. The package is stamped with the date of its production.

Date Stamped on Package: A noteworthy refinement in the presentation of Digitalis, deserving of professional commendation, is the fact that a number of pharmaceutical houses stamp the date of manufacture on each package ,with the recommendation that allowance in dosage be made for deterioration after twelve months.

Preparations: Leaf, powdered leaves, tablets, tincture, fluid extract, infusion, ampoules and other packages for hypodermatic, intramuscular and intravenous use.

Dose: The usual dose of Digitalis leaves or powdered leaves is from 1 to 3 grains; commonly, 1 1-2 grains is considered proper dose; tablets are ordinarily made to represent approximately a grain to a grain and a half of the leaf; the ordinary dose of the tincture is 10 to 15 drops, 1 cc. being equivalent to 1 1-2 grains of leaf.

It will be remembered, that, besides the tincture of Digitalis, we formerly had a number of other preparations, including fluid extract and solid extract, also a powdered solid extract. It is recalled that the powdered solid extract, prepared under the supervision of Dr. Houghton and marketed by Parke-Davis, was in former years one of the most dependable, if not the most dependable solid preparation to be had. Up to a few years ago, it was common practice to use this solid extract in the preparation of freshly made pills and capsules, containing, besides Digitalis, such drugs as nux vomica, mass of the carbonate of iron, resin podophyllin, etc., these ingredients resulting in excellent combinations, recommended by textbooks and clinicians.

For intravenous use, the several pharmaceutical houses, specializing in Digitalis provide aseptic solutions, marketed in ampoules and occasionally in rubber stoppered, amber colored bottles. Concerning the potency of Digitalis marketed in ampoules, it is stated the drug remains active for a period of a year or more.

Elimination: Digitalis is slowly excreted. As a result, we have long known of the likelihood of accumulation, the so-called "cumulative effect" being described by all of the early writers. Pardee is responsible for the statement that about 22 minims of the tincture is excreted in twenty-four hours. Assuming that the average dose is 10 to 15 minims, it may easily be calculated that the patient to whom four such doses are administered per day, and who receives therefore from 40 minims to 60 minims in a given twenty-four hours, and from whom 22 minims are eliminated in equal time will carry over from 18 to 38 minims into his second day. Assuming further that the dose of 10 to 15 minims is continued for a period of time, it is easily seen, that, before many days, at the end of a given daily period, the total of the dose administered, plus the dose, retained and not eliminated, may become a massive quantity, the effect of which will soon be troublesome, if not dangerous.

I have frequently been asked by thoughtful students why so little untoward action was observed in the hospital wards, where the routine dose of 15 or more minims of tincture of Digitalis had been given for indefinite periods of time. The answer is easy; these patients were not getting potent Digitalis; they were receiving preparations that were inert, neither benefit occurring nor harm resulting from cumulation.

Rapid Elimination After Intravenous Injection: The statement is made by certain observers that 90% of Digitalis glucosides disappear from the blood within ten to fifteen minutes after being injected intravenously; this is at variance with the known cumulative effect of the drug, administered per orem. If such be in any measure true, it must explain the reason that Digitalis, intravenously given, does not procure a more prompt or a more positive effect than when administered by the mouth.

DOSES OF GLUCOSIDES: Digitalin Tablets: The dose of this glucoside is 1-100 grain. The writer has occasionally seen positive effect from the administration of such tablets; again, he has known them to have been given for an indefinite period, with no effect whatsoever procurable. Digitalinum Verum: Twenty or twenty-five years ago, tablets of Digitalinum Verum were frequently administered in dose of 1-250 grain; today, the dose, as laid down, is 1-500 to 1-250 grain. Digitoxin: Some twenty-five years ago, when this glucoside first came into favor, it was common to administer it in very small dose—1-1000 grain to 1-500 grain; today, the recommended dose is 1-200 to 1-100 grain. Digitalein: Dose 1-60 to 1-30 grain. Gitalin: Dose 1-80 grain. Verodigen: Said to be identical with Gitalin; dose 1-80 grain.

PREPARATIONS OFFICIAL IN THE U. S. PHARMACOPOEIA: Tincture Digitalis, fluid extract Digitalis, infusion Digitalis. Though the leaves and the powdered leaves are not included among the official preparations, these are commonly in use by the profession; dose 1 to 1½ up to 2 or 3 grains.

TRADE PREPARATIONS: Manufacturing pharmaceutical establishments have in latter years vied with each other in the production of so-called standardized preparations. They are in each instance known and identified by some trade name. Among these is Digifoline, produced by the Society of Chemical Industry in Switzerland. The producers emphasize the fact that inert extractives have been removed and claim the preparation contains only Digitoxin, Digitalin and Digitalein. It is offered as tablets, as liquid and in ampoules. Stress is also laid on the fact that Digifoline ampoules contain neither alcohol nor glycerin, it being claimed that the alcohol is responsible for the injection being painful and that the glycerin delays the absorption of the injected solution. Digalen, another proprietary preparation, has come into considerable use in latter years, chiefly for intramuscular administration. It is said to contain a soluble Digitoxin: this has been questioned by those who claim Digitoxin to be insoluble. Fat Free Preparations: Much emphasis has attached in latter years to so-called fat free tinctures; Parke-Davis, Squibb, Mulford and others were the first to produce such tincture. The dose of the fat free preparation is identical with the old official preparation, 5 to 15 drops. Digipuratum is a yellowish powder; according to claim, it represents the physiologically active Digitalis glucosides as tannates (therefore its yellow color). Dose 1 to 2 grains. Crystalline Digitalins on the market are two—Nativelle's Digitalin Cristallisee and Merck's Crystallized Digitalin. Since the former's activity is dependent upon Digitoxin and the latter contains much Digitonin, the two preparations are entirely different in their physiological effect. In France, Nativelle's Digitalin is official in solution 1:1000—the standard Digitalis preparation of France; 25 drops of a 1:1000 solution is equivalent to 15 grains of Digitalis leaf.

DIGITALIZATION: By this term is understood the administration of Digitalis to a point where the full physiological action of the drug is manifest on the heart and circulation, namely, slowing of the rate of the heart, improvement in the tone of the heart muscle, reestablishment of rhythmic contraction where arhythmia has previously existed.

METHODS OF PRODUCING DIGITALIZATION: There are several methods for the bringing about of a state in the circulatory apparatus, known as "Digitalization." They are: the ordinary slow method, procurable, as a general rule in from three to six days, the rapid method, procurable in from one to two days, and the so-called intensive method for use in urgent conditions, whereby a result is procurable in from twelve to twenty-four hours.

Enough has been said to make plain to the reader that the question of choice of preparation of Digitalis is important. If an effect on the circulation is to be procured and, if this effect is to be maintained, it is only possible, provided a potent, dependable, so-called standardized preparation is selected. Unquestionably, the method of administration by mouth must be accepted as the choice. It need not be repeated that Digitalis by hypodermatic, intramuscular or by intravenous route has little to offer in emergency.

(1) Ordinary Slow Method—Where there is no urgency, Digitalization, under this method, may be procured in from three to six days by the administration of four doses daily, of from 1 to 3 grains of a potent preparation. It were best to give the drug every four hours during the day, none to be given at night.

(2) Rapid Method for the securing of Digitalization in from one to two days—This method pre-supposes the existence of positive decompensation which has, however, not reached an urgent state, requiring the intensive method. The dose of Digitalis is very much

larger than by the preceding method, namely, 20 to 2 4grains are given during the twenty-four hours—5 to 6 grains per dose, repeated every six hours; after the first twenty-four hours (on the second day), it is suggested that the dose be reduced by half—2 1-2 to 3 grains every four hours during the waking period, none during the night . In the event complete Digitalization is not thus produced the second day schedule is continued on the third day and possibly on the fouth day.

(3) Intensive Digitalization, known as the "Eggleston Body-Weight Method"; Useful for the procuring of Digitalization in from twelve to twenty-four hours; an effect is occasionally observed by the intensive method in six hours time. Caution: It is important that the patient, to whom Digitalis is about to be administered by the Eggleston method should have previously received no Digitalis during a period of ten days, in the event the patient has had Digitalis within ten days there must me some modification of the method. The body weight plan presumes that the patient is in a hospital, under competent medical observation; if at home, not less than two nurses should be available for alternate duty, both of whom have had experience in the administration of Digitalis and are competent to observe and interpret physiological action and untoward result. While the method is not so complicated but that an intelligent member of the profession is capable of easily executing it, it is not without danger. For its complete understanding, the reader is referred to recent textbooks on the heart, in which tables are available showing the average dose for patients, calculated on a basis of body weight.

Maintenance Dosage: Reference has been made to the question of elimination of Digitalis, Pardee's statement, quoted, showing the rate of disappearance of the drug from the body to be the equivalent of 22 minims of the tincture per day, equal to approximately 2 grains of the leaf or powdered leaf. If accumulation of the drug is to be avoided, the dose had best not exceed 1 1-2 grains, equivalent to 16 minims of the tincture.

The Krause Method—Digitalis Dispert: It is deemed proper to say a word about a preparation of Digitalis which, in recent months, has been brought to the notice of the profession through the firm of Schering & Glatz, known as the Krause Method of preparing Digitalis Dispert. The preparation is Council accepted.

A moment ago, the writer stated, of all of the preparations of Digitalis, known to the physician of twenty-five to fifty years ago, none was in such high repute as the infusion. He stated, provided a potent leaf was available, our fathers and forefathers looked upon an infusion, made from such potent leaf, as representing the most positive action available from any Digitalis preparation. The Krause process has for its purpose the producing of an infusion from a potent leaf representing all of the medicinally active principles in Digitalis. Through means of a so-called "dispersion," presently to be described, the Digitalis glucosides which are in cold watery solution—INFUSION—in the Krause method are brought to a dry powdered state in the fractional part of a second.

The procedure by which this is accomplished, as described by Krause, obviates several disadvantages to which other Digitalis preparations are likely to be subjected in the course of their preparation. They are (1) much handling of the leaf, always a disadvantage, because of opportunity for moisture doing its damage and oxidation doing additional damage; (2) the damage to the contained glucosides in Digitalis, through hydrolysis, is one with which all manufacturers of the drug are familiar; (3) it has been said that it were well not to subject Digitalis leaf to a temperature in excess of 90 to 120 degrees C. The Krause method, a cold water process, entirely obviates the disadvantages of heat, thus saving all of the contained glucosidal strength present in the leaf.

Krause Technique: The technique of the Krause method consists in macerating Digitalis leaves in cold water. The entire glucosidal strength, thus obtained without impairment, represented as a watery extract of Digitalis, an infusion, is thoroughly and very quickly reduced to a fine, dry powder. The process is one of nebulization, wherein the extract is "dispersed" in an air chamber in the presence of a rapidly moving air current. Not more than a fraction of a second is required by this dispersion in the production of the thoroughly dry Digitalis powder—Digitalis Dispert.

Of all of the preparations with which the writer has familiarized himself during the past thirty years, none has been as satisfactory to him as Digitalis Dispert. Tried out in the Clinic in a variety of cases, including simple decompensations, due to atonic muscle conditions, also in decompensations, complicated by valvular lesions with preceding hypertrophy, also in decompensations, where there were certain degrees of myocarditis degenerativa, rarely did the Dispert fail in the production of the much desired Digitalization. In a number of arhythmia cases, some of which had previously resisted efforts at Digitalization, we were rewarded by the use of the Dispert. In extra systole cases, the premature contractions promptly disappeared following its employment. In other cases with auricular fibrillation, some complicated by mitral disease, our ability to Digitalize and relieve the fibrillation was uniformly gratifying. The effect was obtained in an average of seventy-two hours.

Resume: Granted a potent leaf, no better preparation of Digitalis is procurable than a properly made infusion. Digitalis Dispert has all of the advantages of the infusion. The standardized leaf from which it is prepared is of known potency. In the manufacture of the Dispert, as previously stated, there has been (a) little handling of the leaf, (b) minimum oxidation and hydrolysis, (c) no heat has been applied. Tablets of Digitalis Dispert should be kept away from light, in the original amber colored small glass containers; the package should be kept well stoppered, thus avoiding deterioration from moisture.

Test Cases: In order to make practical test of Digitalis Dispert tablets, the drug was employed in a series of cases presenting at the Clinic, first over a period of eight months and again throughout a period of three months. The series included ambulatory patients and cases requiring hospitalization. Among the last were (1) patients with auricular fibrillation with concomitant mitral disease, (2) extra systole cases, (3) myocarditis degenerativa, (4) routine decompensation cases, (5) routine arhythmias. In the entire series, Digitalization was promptly obtained, the time required never being longer than seventy-two hours. In a number of cases, the effect produced exceeded the expectation of both patient and members of the staff.

Three such extraordinary results are worthy of recording:

(a) Mr. R., adult, occupation, Presbyterian minister, aged 41. Diagnosis: decompensation complicating valvular disease; patient is in charge of a pulpit in the mountains of Eastern Kentucky; work of a missionary type; wholly incapacitated with edema of both lower extremities; hypotension extreme; urine output small, albumin large quantity, finely granular casts, coarsely granular casts, blood casts; kidney function: first observation 20%, second observation 10%; dyspnoea extreme. Within forty-eight hours, breathing was much improved, urine output considerably increased; after seventy-two hours, dyspnoea quite relieved, edema of lower etxrmeities disappeared. The man made a complete recovery; compensation has been wholly restored; he is back at his scene of activity, discharging the difficult responsibilities of his office.

(b) Mrs. S., widow, aged 72; diagnosis: arterio-sclerosis with cardiac hypertrophy; for several years, patient has been the subject of a cardio-vascular-renal condition, low gravity urine with a small per cent of albumin and an occasional hyaline cast. Recently was subjected to breast amputation for malignancy; though ether was not employed, because of the cardio-vascular condition, the shock of the surgery was too much for the patient, who was removed from the operating room supposedly dead; she was saved by the administration of Digitalis. Four months ago, compensation suddenly gave way, following exertion, bringing on symptoms of extremis; patient became pulseless, with marked pallor, cold extremities, clammy sweat. Rallying under Digitalis administration, death seemed assured from general anasarca and anuria. Despite the patient's age and her fixed organic disease, she has made a recovery and is back on her feet, willing and ready to endure a second piece of surgery or the use of radium needles for the relief of recurrence of malignant glands in the axilla.

(c) Mr. G., aged 59; occupation head of large insurance agency. This man has for many years defied all of the rules and regulations of life—a constant heavy smoker and constant heavy drinker of alcohol, frequently going on sprees; he has been an enormous eater, especially of meats and highly seasoned foods. Six months ago, he suffered a mild stroke of apoplexy, from which he recovered the use of the involved muscles. Symptoms of ruptured compensation developed, marked by dyspnoea and edema of the lower extremities; with failure of the right side of the heart, a bronchial catarrh made its appearance, cough by day and by night harassing the patient. Urine characteristic of failure of vis a tergo was present, high gravity, hyperacid reaction, enormous amount of albumin, with hyaline casts, granular casts, blood casts, epithelial casts and waxy casts. Blood pressure, formerly systolic 180 to 200, fell to 100 and less than 100. Appetite became almost nil; there was complete aversion for food, with nause aand disposition to vomit. The action of Digitalis Dispert in this case, as in the two other cases taken from a large list, has been little short of marvelous—dyspnoea greatly improved, cough controlled making possible a good night's rest; the urine has improved; systolic blood pressure has been increased to 126 and 130.

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CASE OF TETANUS WITH RECOVERY OF PATIENT.*

By Elmer L. Henderson, M. D., F. A. C. S., Louisville.

It is believed the following case history is sufficiently interesting to warrant detail record: (1) because the patient had a severe attack of tetanus which developed within a few days after injury, and (2) because complete recovery followed the administration of heroic doses of tetanus antitoxin.

H. L., a male, aged eight years, a normally developed and well-nourished boy, referred by Dr. H. E. Pelle, of Louisville, Kentucky, August 5th, 1927. The family history was negative. In earlier childhood the patient had pertussis, measles and diphtheria. Otherwise the personal history contained nothing worthy of note.

About a week prior to first observation, while visiting in the country, the child stepped on a rusty nail which pierced the sole of his right foot. He withdrew the nail shortly afterward, but no treatment was instituted; and as he was away from home, the parents knew nothing about the accident until August 4th, when the boy returned from the country. At that time he complained of considerable soreness and stiffness of his jaw.

The following morning, August 5th, the stiffness of the facial muscles had increased to such an extent that the child was unable to open his mouth. Opisthotonos was also marked, and he had a convulsion shortly after awakening. Dr. Pelle was then summoned, and, after telephoning to me explaining the situation, was requested to send the patient to the hospital at once.

Physical examination on admission was found negative except for stiffness and rigidity of the muscles of the face and neck and quite marked opisthotonos; the abdominal muscles were also extremely tense. The foot at the site of penetration of the nail was contracted, the leg was slightly flexed, and the muscles very rigid. After the least excitement the child would have a severe convulsion, and it was necessary to keep choloroform in the room ready for instant use to produce relaxation during these seizures.

The patient was admitted to hospital August 5th, at one o'clock p. m. His temperature was then 98.6°F., pulse 120, respirations 36. He was examined immediately, and after making the diagnosis of tetanus, 20,000 units of tetanus antitoxin was administered by three routes under chloroform anesthesia, viz. 1-3 intraspinously, 1-3 intravenously, and 1-3 subcutaneously. The administration of chloral hydrate in rather large doses per rectum was started,—a sufficient amount being given to keep the patient comfortable,—together with 1-8 grain morphine hypodermatically as needed. Three doses of morphine (1-8 grain each) were necessary during the succeeding twenty-four hours, and on several occasions chloroform had to be administered for relaxation because of severe convulsions. About eight o'clock that night the temperature had risen to 102°F., pulse 160, respirations 40.

The following morning, August 6th, the temperature was 101°F., pulse 170, respirations 36. The outlook at that time appeared exceedingly gloomy, it being doubted whether the child would live throughout the day. At 9:30 a. m., 20,000 unilts antitoxin administered as before, that is 1-3 intraspinously, 1-3 intravenously, 1-3 subcutaneously. We also began giving digifolin hypodermatically, one cc. every six hours. Chloral hydrate per rectum was continued and as much kalak water as could be absorbed was introduced by proctoclysis. The patient was given small quantities of liquid nourishment, milk, broths, etc., from time to time by means of a tube. As one of his teeth was missing, we were able to feed him through the tube very readily.

August 7th, the child seemed to show signs of improvement. Temperature 98.6°F., pulse 140, respirations 36. At 9:30 a. m. 20,000 units of antitoxin administered by same routes as previous day. Other methods of treatment continued.

August 8th, improvement apparently maintained. Temperature 98.6°F., pulse 120, respirations 30. At 9:30 a. m. 20,000 units antitoxin administered as before.

August 9th, child's condition seemed somewhat better. At 9:30 a. m. 20,000 units antitoxin administered, 2-3 intravenously, 1-3 subcutaneously. While improvement had been maintained, there had occurred no tendency toward relaxation of the muscles, except when the patient was under the influence of chloral hydrate and morphine; and even then the muscles were very tense and marked opisthotonos persisted.

August 10th, conditions unchanged. At

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*Read before the Jefferson County Medical Society.

9:30 a. m. 20,000 units antitoxin given, 1-2 intravenously, 1-2 subcutaneously.

August 11th, little change in the situation. At 10:00 a. m. 20,000 units antitoxin administered, 1-2 intravenously, 1-2 subcutaneously, at which time choloroform was required to control convulsions.

August 12th, patient's condition about the same. At 9:30 a. m. 20,000 units antitoxin given, 1-3 intraspinously, 1-3 intravenously, 1-3 subcutaneously.

August 13th, no change in condition except there was some relaxation of jaw muscles and the mouth could be opened about one-fourth of an inch. We had thus far been able to keep the child fairly well nourished on liquids. Kalak water proctoclysis and chloral hydrate per rectum continued, occasional doses of morphine (1-8 grain) given, and sometimes chloroform used for relaxation during convulsions. By this time the pulse had improved to such extent that digifolin was discontinued, orders being issued that it be administered only when the pulse rate exceeded 120. The child had improved considerably and seemed to enjoy his food. Proper elimination had been maintained by milk of magnesia administered as required. Most of his stools were involuntary. About this time the child developed a severe outbreak of generalized urticaria, with nausea and vomiting; in other words, typical evidences of serum sickness or anaphylaxis. However, despite the severe reaction from the serum, at 9:30 a. m. 20,000 units antitoxin was administered, 1-2 intravenously, 1-2 subcutaneously.

August 14th, condition practically unchanged. The nausea and cutaneous manifestations were still marked. Possibly the child could open his mouth a little farther than the previous day. At 9:30 a. m. 5,000 units antitoxin administered subcutaneously, and the dose repeated in the afternoon.

August 15th, patient about the same as the day before. At 9:30 a. m. 5,000 units antitoxin given subcutaneously, and 5,000 units by the same route in the afternoon.

August 16th, little change in the situation. At 9:30 a. m. 5,000 units antitoxin subcutaneously, dose repeated in the afternoon.

August 17th, condition of patient considerably improved. Temperature normal, pulse 100 to 120, respirations 24. Both pulse and respirations became accelerated upon the least excitement and convulsive movements occurred. Large doses of chloral hydrate and occasionally morphine required to control convulsions. Two doses of antitoxin, 5,000 units each, given this day subcutaneously, morning and afternoon.

August 18th, improvement continued. Two doses antitoxin, 5,000 units each, administered subcutaneously, one in the morning, the other in the afternoon.

August 19th, patient markedly improved. We had been able to continue his nourishment remarkedly well, considering how extremely ill he had been. Temperature normal, pulse 100 to 110, respirations 24. One dose antitoxin, 5,000 units, given subcutaneously.

August 20th, improvement maintained, little change in situation. One dose of antitoxin, 5,000 units, administered subcutaneously.

August 21st, condition unchanged. One dose of antitoxin, 5,000 units, given subcutaneously.

August 22nd, child seemed not so well. Slight temperature elevation, pulse and respirations increased in rapidity. During the morning 5,000 units antitoxin administered subcutaneously, dose repeated in the afternoon.

August 23rd, patient much improved, said he felt well, and asked for something more to eat. There was greater relaxation of the muscles and he could open his mouth to the extent of about one inch. Abdominal muscles less rigid. However, his foot was still contracted and the leg flexed. One dose of antitoxin, 5,000 units, given subcutaneously.

August 24th, patient still improving. One dose of antitoxin, 5,000 units, administered subcutaneously.

August 25th, child showed such marked improvement that we deemed it safe to discontinue antitoxin, also chloral hydrate and morphine.

August 26th, improvement maintained, condition excellent.

August 27th, patient placed in chair. He could open his mouth fairly well and was able to masticate his food. Drugs discontinued except milk of magnesia.

August 28th, child being rolled about in chair in hall of the hospital, and said he "felt fine."

August 30th, patient dismissed from hospital in splendid condition. There being still some contraction of the foot the father was instructed to have the child walk as much as possible. When seen two weeks later the patient was perfectly normal except for evidence of having been severely ill. He was able to walk without showing any sign that the foot had been involved, the muscles had relaxed and the foot had become straight.

One of the main reasons for reporting the foregoing case is that the majority of tetanus patients die, especially when the disease develops early. Those who recover from tetanus develop the disease late, three weeks or more after injury. During the late war we considered these the most favorable cases.

In the case reported it seems certain that the persistent administration of heroic doses of tetanus antitoxin saved the patient's life. In conversation with several physicians during the period these large doses of antitoxin were being given, I recall that one of them remarked: "If you do not kill the child with antitoxin, he may have a chance of recovery." In my opinion we cannot hope to cure tetanus with antitoxin unless heroic doses are used, and the administration should be intraspinously, intravenously, and subcutaneously.

It has been claimed by some authorities that the portal of entry of the infection, such as a puncture wound from a nail or other instrument, should be opened and thoroughly cleansed. In the case reported no attention was given the puncture wound. At the time of my first observation the disease was well developed. There was no evidence of infection about the foot, merely a slight mark where the nail had entered. There was no induration nor inflammation.

I am firmly convinced that had tetanus antitoxin been discontinued in this case when evidences of serum sickness developed the patient would not have survived. It required considerable nerve to continue the administration of large doses of antitoxin in face of the symptoms the child exhibited,—extensive urticaria, nausea, and vomiting.

It is interesting to note that, during the period of twenty days, this child was given the enormous total of two hundred and sixty-five thousand (265,000) units of tetanus antitoxin. If I mistake not, this establishes a new record.

December 1st, 1927: Report received today shows that the child has remained perfectly well.

DISCUSSIONS

Oscar E. Bloch: The case reported by Dr. Henderson is too interesting to be allowed to pass without discussion. The plan he followed of not disturbing the primary wound in the foot is contrary to my practice. I have always freely opened, sterilized and packed the original wound, even if tetanus was well-developed at the time the patient was seen. This has impressed me as being a logical procedure. By destroying the infection at the primary focus, such heroic doses of tetanus antitoxin as mentioned by Dr. Henderson may not be required.

Two of the patients I have seen with tetanus recovered. These cases occurred several years ago. I think, however, after listening to Dr. Henderson's report, I can reasonably say that in these cases the infection was less severe in type than in the one he has mentioned.

The first patient was seen with the late Dr. Swartz. A boy eight years old, while playing on the board sidewalk leading from the gate to the house door, stuck a splinter in his foot. He developed tetanus four days later. Tetanus antitoxin was administered subcutaneously, none being given intravenously nor intraspinously. The patient made a satisfactory recovery.

The second patient was seen with Dr. Pirkey. A boy three years old while at play stuck a thorn in his foot and develped tetanus ten days afterward. This patient was treated as Dr. Henderson has outlined, i. e., tetanus antitoxin was administered intraspinously, intravenously and subcutaneously. The child was kept quiet with morphine, no chloroform being used, and made a prompt recovery.

No serum sickness developed in either of these cases, nor did we find it necessary to administer the enormous doses of tetanus antitoxin mentioned by Dr. Henderson.

James S. Lutz: Dr. Henderson has presented a most interesting report. I would like to mention a case of tetanus observed in the Marine Hospital, Evansville, Indiana, several years ago. A negro deckhand, while at work on one of the river boats, in some unknown manner was caught in the rope he was using, and the entire outer plantar surface of his foot was literally torn away. Five days later he developed tetanus. It was difficult at that time to secure tetanus antitoxin; we were able to get only 40,000 units. This was administered in divided doses intramuscularly. For the most part tne patient was kept quiet with morphine, but the nurse administered chloroform when necessary during convulsions.

This patient recovered from tetanus, but developed acute mania and was sent to an insane asylum in Southern Indiana. I heard nothing from him afterward. I would like for some one to tell us whether acute mania often follows tetanus.

Dr. Henderson is to be congratulated upon the recovery of his patient.

Mischa Casper: It is my opinion that the enormous doses of tetanus antitoxin Dr. Henderson administered in the case reported, only adds emphasis to what is already well understood by the medical profession of today, i. e., that antitoxin is of little value in the treatment of developed tetanus, but is exceedingly valuable as a prophylactic. Whether the child recovered because tetanus antitoxin was administered would be difficult to definitely determine. Perhaps the general care and other medication he received had as much to do with recovery as the antitoxin. At all events, the case demonstrates that if there be any virtue in tetanus antitoxin as a curative remedy, enormous doses must be administered to accomplish the desired result.

Several years ago I reported two cases of tetanus before this society, and in a restrospective survey of these cases I have often wondered whether the treatment then instituted actually had any beneficial effect. One patient was treated by intravenous injections of carbolic acid solution, the other by large doses of magnesium sulphate similarly introduced. We not infrequently see in the literature some new remedy mentioned for which marvelous results are claimed in the treatment of this extremely fatal disease. However, the question in my mind is, have we really any remedy of specific nature for the treatment of tetanus?

Dr. Henderson certainly handled his case in an eminently successful manner, particularly as regards the maintenance of nutrition in an acutely ill patient. One of the most important items in the treatment of tetanus is to maintain nutrition and especially the fluid content of the blood.

Elmer L. Henderson (in closing): I thank the gentlemen for their liberal discussion. It is, of course, a well known fact that sometimes a patient will recover from tetanus under any kind of treatment. However, ordinarily when the disease develops early, the attack is severe, and the patient does not recover. I have had the opportunity of seeing quite a number of cases of tetanus, and am frank to say that more of the patients have died than have recovered. The most favorable cases are those which develop three weeks or more following injury. In my military service I saw some cases of tetanus develop as late as three months after injury. These attacks were mild, as a rule, and the majority of the patients recovered.

One reason for reporting the present case was to emphasize the importance of the prophylactic use of tetanus antitoxin. If this child had been given a prophylactic dose of 15,000 units of antitoxin at the time of injury he would not have had tetanus. I have yet to see tetanus develop following a prophylactic dose of antitoxin, if given early.

It is most important that the physician who first sees a patient who has sustained injury, should administer a prophylactic dose of tetanus antitoxin, no matter how trivial the injury may appear, if there has been the least chance of contamination by the tetanus bacillus.

Iodine Starch Test of Body Fluids.—Bassler has found the original test of value in diabetes mellitus, both in diagnostic and therapeutic ways. It helps in the understanding of true pancreatic disease. A digestive reason for diabetes is presented, and when the test is definite, it shows when pancreatic feeding should be employed; the dosage of insulin may then perhaps be reduced or discontinued.

RESECTION OF STOMACH FOR CARCINOMA: CASE REPORT.*

By Guy P. Grigsby, M. D., F. A. C. S.,
Louisville.

The subject of this report, Mr. S. P., a Jew, aged 30 years, was admitted to the medical department of the clinic at West Baden, Ind., on December 22nd, 1925, with the following history: His chief complaint was pain in the stomach with the formation of gas, which he said began five years previously. Family history: father, mother, four sisters and one brother, all living and well. Personal history: married nine years; two children living and well. Past illnesses: no injuries; influenza four years ago; tonsillitis two plus; no operations. Habits: coffee two plus; tea one plus; cigarettes, smokes excessively.

Clinical history: Five years ago he began to have the formation of gas in the stomach, about two hours after eating, which caused him considerable discomfort. He took large quantities of soda which gave him relief. At times he would degurgitate a clear, watery fluid, which nauseated him. He consulted Dr. Bertram W. Sippy, of Chicago, who diagnosed gastric ulcer. He then entered a hospital where he remained for thirty days on a "Sippy diet.' He improved, and continued the diet for about four months then neglected it.

When the patient came under my observation he said he "now had symptoms only in the spring and fall." His appetite was good, but he was chronically constipated, had some flatus, and belched small amounts of food at intervals. He had occasional "gnawing sensations" in the stomach, and said he felt more uncomfortable when his stomach was empty. He sometimes became nauseated and vomited, but had never noticed any blood in the vomtus nor did it have a greenish tinge. There had been blood in the stools at times which he attributed to "bleeding hemorrhoids." He had no dyspnea nor pain in the chest, but there was present a dry, unproductive cough, and he complained of a "burning" sensation about the heart when his stomach was filled with gas. There was no palpitation, no vertigo, no edema of the extremities; no urinary frequency, no urgency, no pain or burning on micturition, no hematuria. He had lost about sixteen pounds in weight since October 25th, 1925, but had ben gaining while at West Baden.

Physical examination: Height five feet and eleven inches, normal weight 192, present 176 pounds. Patient well developed and well nourished. No scars on body, no pigmentations nor eruptions; complexion ruddy, hair scanty; pupils equal, regular and react normally to light and accommodation; teeth peculiarly placed, spaces between upper teeth wide and teeth slant outward; tonsils negative, no enlarged glands found, thyroid not palpated. Heart: no shocks nor thrills, outline normal, sounds clear and distinct, rate regular. Chest: well developed, no bulgings nor retractions, movements symmetrical; percussion negative throughout; no adventitious sounds. Abdomen: flat, recti muscles well developed; no tenderness nor rigidity. On the right side of the left rectus muscle there was a pea-sized palpable mass which was believed to be in the muscle or muscle sheath. Extremities and reflexes negative.

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Roentgen-ray examination: The fluoroscope shows heart and lungs normal; diaphragm normal; stomach 'fishhook'' type, tone, size and position normal; peristalsis vigorous. There was a deformity of the pylorus, and mainly on the greater curvature of the stomach. Cap difficult to fill, flattened and not normal in outline. In four hours two-thirds of the barium meal remained in the stomach, and the deformity still persisted. In twenty-four hours one-half of the meal was still in the stomach; head of barium column advanced to splenic flexure. Nothing else abnormal in outline. In four hours two-thirds December 29th, three days later, again showed ''fishhook'' stomach with the deformity still persisting. At four and a half hours the residue in the stomach was three plus.

Laboratory findings: Urine, straw color, specific gravity 1015, reaction acid, albumin and sugar negative; squamous epithelium present, no casts; occasional pus cell; crystals, neutral calcium phosphate. Blood: hemoglobin 83 per cent, erythrocytes 5,270,000, leucocytes 11,200; one hundred cells counted, lymphocytes 34 per cent, large mononuclears 2 per cent, neutrophiles 64 per cent. Wassermann reaction negative. Fractional test meal, Ewald: Fifty-five minutes, total acidity 52, free hydrochloric acid 20, starch erythrodextrin 80 cc., combined hydrochloric acid 18, blood three plus.

Based upon the history and a careful study of this patient, a diagnosis was made by the medical department of carcinoma of the greater curvature of the stomach involving the pylorus. He was accordingly referred to the surgical department and was operated upon January 4th, 1926. Under gas and ether anesthesia a right rectus incision was made and the abdomen opened. As soon as the stomach was brought into view, a large mass involving part of the pylorus, but mainly the greater curvature of the stomach, was noted. In size the mass was somewhat larger than one's fist. It was fixed by numerous adhesions to surrounding structures, being particularly adherent to the head of the pancreas. There was only partial occlusion of the pylorus. Careful examination of the liver disclosed no evidence of metastasis, nor could any lymphatic glands be palpated in any portion of the abdomen. There were several nodules intimately connected with the mass in the gastrocolic omentum. The gross appearance of the tumor indicated that it was unquestionably carcinomatous, and resection of the stomach was decided upon. The adhesions were separated fairly easily, except the attachment to the head of the pancreas, which we found it necessary to divide by sharp dissection, and some difficulty was experienced in controlling the oozing from the pancreas.

Polya's operation: Resection was performed by the usual technique. Clamps were applied to the duodenum and stomach well beyond the limits of the growth, and two inches of the duodenum and nearly half the stomach removed by burning through the tissues with actual cautery. The duodenal stump was inverted by means of two pursestring sutures. The jejunum was then brought behind the transverse colon and an anastomosis made between it and the stomach with two rows of sutures. Suture of mucosa with tanned catgut; serous suture with pagenstrader linen. We were careful to excise all lymphatic glands that could be found. The abdomen was closed in the usual manner, and a small cigarette drain placed in the upper angle of the wound.

Pathological report by Dr. Stuart Graves: Gross description: specimen consists of piece of tissue 80x70x45 mm., received in formalin. One surface is covered by a serous coat and the other by a mucous lining. The latter is somewhat roughened with more or less moth-eaten appearance. The walls are thick—22 mm. in diameter—dull gray and firm. Microscopic description: sections shows atypical glandular structures which seem to extend from surface of mucosa to muscularis, and at base tend to infiltrate as large glandular structures between bundles of muscle. In this zone there is seen one large area of cellular reaction, including polymorphonuclears and eosinophiles, in center of which is a definite, small group of epithelial cells in a lymph space. The larger glandular structures are lined with one or more layers of columnar epithelium, somewhat undifferentiated, while others contain papillary epithelial projections and some are almost filled solid with epithelial cells. Mitoses are numerous. Microscopical diagnosis, adenocarcinoma. A supplementary report, showing examination of the glands, was as follows: Sections of one lymph node show metastatic glandular structures lined with columnar epithelium.

The postoperative condition of the patient was satisfactory, with the exception of a persistent cough that threatened to develop into pneumonia. This, however, subsided in three or four days, and except for slight oozing from the drainage tract after removal of the drain, he made a very good recovery and was dismissed from the hospital on February 9th.

Following dismissal from hospital the patient returned to his home in Chicago and reported to us, from time to time, that he was gaining strength and feeling quite well. His improvement continued, and he reported for examination at the clinic on September 2nd, 1926, stating that he had been getting along very well since the operation. His worst symptoms consisted of gas pains and general weakness. There was some pain at the site of incision, but this had gradually diminished. If he overeats he has some nausea and occasionally belches small amounts of food. He consulted Dr. Emil Beck, of Chicago, before returning to the clinic, and brought the encouraging report that Dr. Beck believed there was little danger of recurrence. His weight, however, was only 162½ pounds at that time. He has occasional headache, but there are no cardiac nor pulmonary symptoms. He is still constipated, but this is relieved by daily enemas.

Physical examination, by Dr. C. W. Dowden, shows head and neck negative. Chest: negative except for some increased breath sounds and a few coarse rales at the base of right lung. Heart: blood pressure 120-80, rate 80, slight disturbance of rhythm but no extra systoles, no murmurs nor accentuations, normal size. Abdomen: scar in perfect condition except on straining pery slight hernia in upper angle. Both rectus muscles are normal and abdomen symmetrical. No palpable masses or glands; no tenderness. Border of liver palpable, spleen not palpable. Considerable gaseous distension especially after meals. Both inguinal rings normal. Glandular system: inguinal, axillary and other superficial glands are normal; not enlarged. Summary: condition excellent.

The patient was not seen further by us. He apparently remained well until May, 1917, when he began to rapidly lose weight. There was distress and pain in the stomach. His condition and symptoms gradually became worse and in the early part of July his physicians found a mass in his abdomen which was evidently a recurrence of the carcinoma. This rapidly advanced until his death on the tenth of August, 1927.

The interesting features of this case are: (1) the age of the patient, (2) the indefinite symptoms, and (3) the location of the tumor.

Welsh collected 2,975 cases of carcinoma of the stomach. Of these only 55 occurred in individuals between twenty and thirty years of age. The greater number, namely 620, were found between the ages of fifty and sixty. The fact that this patient was thirty years old teaches us that we should bear in mind the possibility of malignancy in comparatively young people who exhibit symptoms of gastric ulcer.

A review of the symptoms presented by this patient is hardly suggestive of any serious gastric pathology, other than the loss of weight and the more or less positive x-ray findings. The fact that he gave a definite ulcer history would lead one to suspect that he had a recurrence of the ulcer, and I dare say had it not been for the x-ray findings the patient would have been placed upon the usual medical treatment for ulcer. The x-ray study, then, is very important, as illustrated by this case, in eliminating the question of malignancy in patients who have symptoms of gastric ulcer. The lack of symptoms exhibited by this patient lies in the fact that he was just beginning to have pyloric involvement. It has been emphasized by numerous observers that gastric carcinoma, not involving the pylorus to the extent of partial or complete obstruction, can become far advanced even beyond the operative stage without producing grave symptoms.

The location of the neoplasm in this case was on the greater curvature, where malignancy rather seldom occurs. In a recent study by Bothe (Surg. Gynec. and Obstet., June, 1927) of one hundred cases, 59 per cent were on the lesser curvature, 34 per cent on the pylorus, 4 per cent on the posterior wall, and 3 per cent on the greater curvature.

Lymphatic involvement found at operation plays an important part in the prognosis as to recurrence. Balfour (Mayo Clinic) found that 52 per cent free from lymphatic involvement had no recurrence in three years, while those whose glands showed malignant changes only 18 per cent remained free from recurrence during the same period. The glands of the lesser curvature are most frequently involved, followed by those of the greater curvature. Life expectancy is definitely diminished where the lymphatics around the greater curvature are invaded as in the case reported.

This report is presented to you: (1) for the unusual features exhibited, and (2) to arouse your interest in this class of cases that you may be stimulated to more thorough and careful study of patients having gastric symptoms. It is hoped in that way more patients will be brought to surgeons while there is still a chance of cure by resection of the stomach. According to Eusterman (Journal of the A. M. A., January 29th, 1927) only 24 per cent of gastric carcinoma in the Mayo Clinic are found to be operable. It is not to our credit to overlook the early manifestations of this disease, and then to recognize it after the time for relief has passed. This can be avoided only by more careful history taking, physical examination, and the liberal use of the diagnostic aids afforded by the ronetgen-ray and laboratory, in those patients with gastric symptoms.

DISCUSSION

John R. Wathen: The excellent report presented by Dr. Grigsby should not be passed without discussion. I want to congratulate him on his early diagnosis and the successful manner in which the case was handled. Some of the unusual features of the case are: that the patient was only thirty years of age, that the tumor involved the greater curvature of the stomach and pylorus, and that the patient lived in comparative comfort for a year and a half following the resection. Another point to be emphasized is that we should not consider every stomach case as ulcer without thorough investigation. If there is any one place where routine roentgen-ray study is useful it is in gastric ulcer and gall bladder disease. Since we know that gastric carcinoma may occur in individuals of thirty or under, and that the most important feature is early diagnosis, I think we should sound a note of warning to medical men not to keep patients complaining of gastric symptoms too long on the so-called ulcer treatment without having a careful roentgen-ray examination made. By this means it is generally possible to make a differential diagnosis between simple ulcer and malignancy.

Dr. Grigsby's report is of especial value in calling our attention to the importance of early diagnosis and prompt surgical intervention when it has been determned that the lesion is malignant. Only by early operation can we hope to offer a more favorable prognosis and decrease the mortality in gastric carcinoma.

J. Garland Sherrill: It is sometimes unfortunate that medical men are inclined to consider gastric symptoms lightly. In this instance Dr. Grigsby has performed his work with great skill both in the diagnosis and the treatment of his case. A point I wish to emphasize is that patients who have symptoms of indigestion, sourness of the stomach after meals, etc., the symptoms so frequently seen in gastric ulcer and carcinoma, should not defer applying to their medical attendants for advice. Moreover, if all people were carefully examined once or twice a year after reaching the age of forty, many of these lesions would be discovered before they became a distinct menace to the life of the patient.

I agree with what has been said about carcinoma in young people. My experience is that the most malignant types of carcinoma we see are those which occur in individuals in the neighborhood of thirty years of age. Such tumors are much more rapid in their growth than those occurring in older persons, this fact is well worthy of our consideration.

By careful study, as Dr. Grigsby made in his case, and by a careful history taking, spending from one to three hours talking with the patient if necessary at various times, the diagnosis can usually be made on the clinical findings. During one examination the patient may not recall some important item in the history which he will distinctly remember the next time, and in this way information may be secured which will point toward the correct diagnosis. The older physicians and surgeons, long before our day, based their diagnoses largely on what the patients told them as well as their physical findings. They did not have the benefit of elaborate laboratory investigations that we have today. The clinical history is of great importance, and we should give due consideration to the patient's complaints.

Cancer of the stomach, or ulcer which is frequently the forerunner of malignancy, can in most cases be satisfactorily removed by resection as recommended by Rodman several years ago. There are also other methods by which the same results may be accomplished. There has been much discussion in the profession as to whether gastric carcinoma is engrafted upon an ulcer base or whether it develops independently. Personally I believe every gastric ulcer is a potential malignant disease. In my opinion this will be confirmed as the years pass. Ulcer of the stomach on the gastric side of the pylorus is frequently malignant, whereas ulcer of the duodenal side is seldom malignant. This has been my observation and I believe it is in accord with the experience of other surgeons.

Dr. Grigsby has called our attention to a liv subject, i. e., the importance of gastric symptoms pointing toward carcinoma of the stomach.

R. Hayes Davis: The subject of gastric carcinoma is one of great importance, and I believe in the majority of cases we have a chance to make an early diagnosis. Gastric carcinoma is most frequently seen in individuals after the age of forty years, and in such cases where the patients complain of chronic gastric symptoms it is of the utmost importance that careful physical examination be made and painstaking history be obtained. For the last several years I have made it a rule always to make roentgen-ray examination of every individual who has complained of gastric symptoms for any considerable length of time. If this plan is followed I believe the diagnosis of carcinoma can be made in the vast majority of cases. The x-ray appearance is rather typical in these cases; it reveals the progress the disease has made, and something is almost certain to be encountered on the films to indicate the nature of the pathology present. This is especially important, of course, when loss of weight and other general symptoms that accompany carcinoma are present. It is always well to make a test of the gastric contents, for in carcinoma there is practically always lessening or absence of free hydrochloric acid, especially in advanced cases. However, this may or may not be true. In the majority of cases the hydrochloric acid will be increased. In early cases of malignancy, and especially those engrafted on old ulcer, a fact which is not uncommon, the same thing is true, so the test cannot be implicitly relied upon, and yet it is an important diagnostic aid in these cases. The presence of blood in the gastric contents is a most important sign of malignancy; of course in ulcer it is also but it is more likely to be constant in carcinoma. We know that in carcinoma there is more hemorrhage than in ulcer, so if the patient is carefully watched and frequent examinations made, free or occult blood will practically always be found in carcinoma, whereas in ulcer it is not nearly so likely to be present. So in the majority of these cases if careful and painstaking examinations are made malignancy will be suspected, or at least a lesion will be suspected that cannot be handled by ordinary means and exploratory operation will be advised.

I recall one case that is most interesting in this connection, and if permissible would like to mention some of the most important points in relation to it: A man came to me about three years ago giving the history of considerable epigastric pain extending over a period of four or five months. He had lost twenty pounds in weight and was rather anemic. There was blood in the gastric contents with a very low acidity. Roentgen-ray examination showed one of the most decided filling defects I have ever seen with a markedly dilated stomach. He was obliged to leave after the first examination so I was unable to make a retention plate. However, the films were typical of malignancy. It happened that a few days later a gentleman, a specialist in roentgen-ray work from another city, came in the office and I showed him the film. After examining it he remarked: "There can be no question about the diagnosis of malignancy in this case." When the man was seen shortly afterward I urged him to undergo an operation immediately. He said he would consider it and let me know later. I did not see him again for more than two years. When he returned he had regained all his lost weight and was apparently in perfect health. This was evidently a case of very large, indurated ulcer that had existed for a long time and resembled carcinoma. The evidence was so typical that we thought we could not be mistaken in the diagnosis, but the lesion was not what we thought it was.

Irvin Abell: I have greatly enjoyed Dr. Grigsby's excellent report. In the discussion of this report two rather interesting points have been brought out, namely, the greater malignancy of carcinoma in young people as compared with that of advanced years, and secondly, the question of free hydrochloric acid in the stomach after stomach resections. In explanation of the first observation the following may be noted: we know that certain structures of the body tend to become vestigial as age advances. For instance the tonsils are exceedingly active in the young and become more or less atrophic and inactive in the aged. The same is true of the appendix, if frequently showing in the latter years of life almost complete obliteration of its mucosa. This same change is found to a much less degree in the lymphatic circulation which tends to become somewhat blocked and less active as people advance in years. This would explain to some degree why carcinoma in the elderly is not so malignant and does not metastasize so rapidly as in young subjects. Again, due to the changes in the blood vessels of the aged the circulation is not as active as in the young, consequently hyalinization occurs more frequently in such growths in the aged than in the young. Again, carcinoma cells tend to complete differentiation more rapidly in the old than in the young; so long as this differentiation is not complete cells multiply quite rapidly, whereas with complete differentiation there is less power of cell regeneration. These physical findings will in large measure explain the observation which all of us have made, that the younger the individual with carcinoma, as a rule the more rapid the growth and the more rapidly fatal the disease.

Regarding the question of free hydrochloric acid in the stomach after pyloric resections much has been recently brought out. I have had occasion to study the stomach acid content in two patients upon whom I have done a resection of the pylorus and antrum, Polya type, one for carcinoma and the other for a chronic calloused ulcer of the lesser curvature. Fractional method of determination of stomach acidity showed both to be practically normal after test meal, each showing between sixty and seventy. Recently while in New York I had opportunity of visiting Berg's Clinic at the Mt. Sinai Hospital and discussing with him the results of resection of the stomach both for gastric and duodenal ulcer.

While this does not bear directly upon the question of cancer the results observed by Berg and his associates are extremely interesting in connection with the question of reduction in stomach acidity by such resections. Acting on the belief that both gastric and duodenal ulcers are inseparably connected with acidity Berg and his associates have now performed more than 480 resections of the stomach for gastric and duodenal ulcer with the idea that by removing the acid bearing portion of the stomach there would be produced either an anacidity or a material reduction in the acid content. In studying by the fractional method the amount of acid present in stomachs subjected to such resections they have found it extremely difficult to produce by such operation a complete anacidity. In their efforts to accomplish this end they have resected increasingly greater amounts of stomach until at present they are removing approximately three-fourths of the organ. They have divided their cases into three groups depending upon the amount of acid present previous to operation, namely, those showing an acidity of 50 to 60, those showing an acidity from 60 to 90, and those showing an acidity above 90. Notwithstanding the fact that they remove three-fourths of the stomach the two latter groups still showed the presence of acid in varying amounts when tested by the fractional method, in some even as high as 50 or 60 per cent. This is hardly in harmony with the old belief that the acid-bearing glands of the stomach are located in the pyloric and antral areas since if this were true the resection of this area should invariably produce an anacidity.

L. Wallace Frank: The remarks made by Dr. Davis emphasize two most important points: (1) that in the presence of filling defects especially at the pylorus one must bear in mind the possibility that they may be due to ulcer and not malignancy, (2) that no patients with large filling defects without other evidence should be considered hopeless until they have undergone surgical exploration.

As to resection of the stomach, especially when ulcers or defects are shown on the lesser curvature: To my mind there is no question but a large percentage of gastric ulcers undergo malignant change, and with the evidence of a mass in the stomach even if it be due to ulcer I believe resection of the stomach and pylorus is the safest method of treatment. By gross examination at time of operation one cannot be certain whether the lesion is benign, simply a large callous ulcer, or whether it is an ulcer that has undergone malignant change. I think in lesions on the gastric side of the duodenum resection of the stomach should be practiced. On the other side I am not so convinced, although the tendency at present is to perform resetion.

Guy P. Grigsby (in closing): I wish to thank the gentlemen for their generous discussion. The main reason for making this report was to call attention of the members of the society to the fact that gastric malignancy may occur early in life, and to emphasize the importance of early diagnosis. Routine examination, as stated by Dr. Davis, will frequently disclose a serious lesion, whereas the symptoms may indicate a trivial affair. The question of gastric acidity has been much more thoroughly answered by Dr. Abell than I could possibly answer it. In the case reported gastric analyses were made and the acidity was found normal.

Another reason for making my report was to bring to the minds of all of you the possibility of malignancy in every case of gastric ulcers. Every patient complaining of gastric symptoms should be most carefully examined to determine the presence or absence of malignancy. It is a well established fact that gastric ulcer is very much more prone to become malignant than duodenal ulcer. Strange to say the pylorus is seldom invaded in malignancy of the stomach. The disease often extends to but does not often involve the pylorus. It certainly behooves all of us to bear in mind that patients giving an ulcer history, or who have had demonstrable ulcer for a period of six months or more, should undergo frequent roentgen-ray examinations to establish the progress and status of the ulcer at the time.

Intradermal Salt Solution Test in Nephritis.—A study of the intradermal salt solution test was made by Feldman and Reifsneider in eighteen cases of nephritis in adults with the following results: The wheals caused by the salt solution disappeared in less than thirty minutes, except in one case (case 13, alkalosis), only when edema, or a history of edema, was present. A decreasing disappearance time was associated with an unfavorable progress of the condition, and an increasing disappearance time with improvement; a very short disappearance time, which persisted in spite of treatment, was of bad prognostic significance. There was not close relationship between the retention of nitrogen and the sodium chloride and cholesterol content of the blood, on the one hand, and the disappearance time on the other. In cases in which the carbon dioxide capacity was determined, and evidence of either severe acidosis or alkalosis was found, there was also a marked shortening of the disappearance time, even in the absence of palpable edema. More examples of these types should be examined.

WHEN SHOULD SENILE CATARACTS BE EXTRACTED?*

By Walter Dean, M. D., Louisville.

At a Hospital Staff meeting this fall I informally reported the case of an old man, decayed in body and mind, who was brought to the hospital long blind in both eyes from hypermature cataract and glaucoma and I know not what else as I could not view his eye grounds. The palpebral conjunctivæ were burned out by trachoma and repeated cultures from the lids showed streptococci in quantity. A horse dose of black draught taken on his departure from home kept his rectum in high state of irritation all during his stay in the hospital and his prostrate got him out of bed about every half hour day and night. I was urged to extract his cataracts before his doctor went home the next day and of course I did not operate at all. He died two months later. I stated that this man was an exaggerated instance of a large percentage of our cataract cases who neglect the opportunity for cataract extraction until they are physically and mentally infirm, get hypermature lenses and other eye complications and are generally wretched surgical risks. I had anticipated that one or maybe two eye men would get up and say they enjoyed the case report and that I would say nothing in closing. To my surprise men in other lines seemed interested and explained to me that the reason many of their patients carried their cataracts to senility was because the oculists were patiently waiting for the cataracts to get "ripe." I was repeatedly asked if ripeness is not necessary for removal and when I answered desirable but not necessary, I was made to feel that I must be in error. One of the members said he had some people sitting around in the dark listening to their blood vessels get hard until their cataracts "got ripe" and he invited me to try to prove my case at this meeting. If this paper is largely quotations, that is because I feel I must come with authority. I assure you I bring nothing new or unorthodox and that the idea was not original even a hundred years ago.

My reading has been wonderfully interesting as I have gone back from the newest editions on ophthalmology decade by decade to those of 75 years ago. The cataracts have been extracted for over two hundred years and pushed back out of the pupil for hundreds of years before that. I have been unable to make any practical use of the literature further back than eighty years ago. Before then I find no mention made of the condition of the eye from a surgical standpoint but vast discourses on the condition of the tongue, on plethora, the full habit and the seasons of the year.

I will first quote from "A Treatise on The Diseases of the Eye," by W. Lawrence, Fellow of the Royal Society, Surgeon Extraordinary to the Queen (Victoria), Surgeon to St. Bartholomew's Hospital, etc., which treatise was printed in 1847 or 80 years ago:

"Cataracts have been distinguished as mature and immature. The former term may be used when the change is fully developed according to the nature of the case. This distinction however has been made chiefly in reference to the time of operating; and a common notion prevails that the operation ought not to be done until the cataract is ripe. This opinion is not altogether unfounded, certain cataracts are the result of vascular congestion if not of inflammation and in these cases it is unfavorable to operate early. We should wait until the change has been completed and until all symptoms of fullness are at an end. We cannot lay down a uniform rule respecting the time of operating. In general we should wait until the patient is blind, understanding by that expression the loss of useful vision."

Our attitude evidently has not changed much if any in these eight decades. Lawrence plainly means that the distinction between immature and mature is a matter of surgical judgment, that when useful vision is lost the lens is mature from a surgical standpoint unless the cataract is the result of or complicated by iridocyclitis when operation must be deferred until "all symptoms of fulness are at an end."

When this work was written there was not one local and not one general anesthetic in use. Atropine is here and there spoken of as an anesthetic but of course it is not. Had Queen Victoria suffered two cataracts I do not doubt that Mr. Lawrence would have sat her up in a chair, supported his elbow on his knee and "holding the globe firmly between the fore and middle fingers" would have "entered the knife carrying it across and bringing it out the nasal side, hesitating from time to time to allow the muscular spasm to subside." The pain must have been terrific and the strain on the operator must have been nearly as great. Patients were not allowed spirits and these grand and dignified old men would never tell in their volumes how they got their fortitude.

Mr. J. S. Wells, Professor of Ophthalmology in King's College wrote A Treatise on

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*Read before the Jefferson County Medical Society.

Diseases of the Eye in 1869 in which he says:

"It is generally deemed important that a cataract, especially the senile form, should mature before it is submitted to operation. If a person who is entirely dependent upon his sight for means of subsistence is affected with double cataract, whose progress is extremely slow and which though very immature is sufficiently dense to prevent his following his customary occupation, it may be advisable to hasten the progress of the cataract by gently pricking the lens with a fine needle. It is safer still as was recommended by Von Graefe to make preliminary iridectomy. But not many patients will submit to such repeated operations. Since the introduction of Von Graefe's new operation, I must confess that I have paid less heed to the necessity of waiting with the operation until the cataract is quite mature, for I have obtained excellent results where this has not been the case. Should we operate upon the one eye if the other is quite free from cataract? I think it is advisable where the operation is almost certain of succeeding. The operated eye although differing greatly in its state of refraction from the other will still assist somewhat in the act of vision. The visual field will be extended and the fear of amblyopia will be removed as the eye may be separately practised with suitable glasses. Moreover the appearance will be improved."

I regret that Von Graefe did not write a treatise. He founded a journal, gave a knife and a new and refined technic of cataract extraction to the profession and unfortunately died at 42.

Prof. C. Schweigger of the University of Berlin wrote a Treatise in 1878, in which we find:

"Senile cataract is called 'ripe' when the opacity has extended to the external cortical layers. This condition is in general desirable but by no means necessary for operation. Frequently there develops a great number of fine points or irregular lines between which transparent lens substance remains. The course of those cases is generally very slowly progressive or they may remain a long time unchanged in a condition which reduces the patient to a very insufficient degree of vision. In such cases, just as in very slowly progressive nuclear cataracts, it would be unwise to postpone operations until the so-called 'ripeness' of the cataract is reached—that is the whole lens opaque."

Prof. H. Schmidt-Rempler, Director of Ophthalmic Clinic at Marburg wrote an Ophthalmic Treatise in 1887 in which he says he waited for maturity of cataract before extraction and that "in slowly progressive cataracts which interfere considerably with vision, we are occasionally forced to accelerate ripening in order to perform an earlier operation." Some times he resorted to a preliminary iridectomy which he states increases the opacity. He says "In order to secure a sort of concussion of the lens, Forester recommends that immediately after iridectomy, the cornea be rubbed with a squint hook if the lens is closely applied to it after the escape of the fluid of the anterior chamber. I have seen rapid ripening after this procedure although it occasionally gives rise to iritic irritation.

Your essayist of this evening has never witnessed a ripening operation unless a preliminary iridectomy comes in that category. It is generally believed now that ripening operations are unnecessary, harmful and defeat the intended purpose. Although they may make the lens completely opaque on its anterior surface, the posterior surface is not modified, which, of course, makes no material difference, if my contention is correct. The mischief comes from adhesions being formed between the capsule and the cortical lamellae which cause retention of soft lens material in spite of any safe effort to remove it at the time of lens extraction.

Swanzy, Surgeon to the Royal Victoria Eye and Ear Hospital at Dublin, wrote in his Treatise in 1903:

"In persons over sixty years of age in whom the nucleus is usually large, many a cataract can be completely removed which does not come up to the strict standard of maturity and at that time of life I would not hesitate to operate without waiting for absolute maturity if the patient were materially incommoded for want of sight."

In 1908, Herman Knapp's satellites dedicated "Cataract Extraction" to him. John Weeks, Prof. of Ophthalmology at Belleview Hospital Medical School was one of the collaborators and he said much which was scientifically technical but this which is scientific without being too technical: "In many cases extraction of cataract may be delayed until the surgeon is satisfied that the most favorable time for operation has arrived. In many other cases the extraction is necessary for economic reasons at the earliest time possible compatible with good results. The most propitious time for extraction is when the lens substance is readily detachable from the lens capsule. When the cataract has reached this stage it is really mature in an operative sense. The terms 'mature cataract' and complete opacification of the lens are thought by many to be synonoymous. This idea is erroneous so far as it applies to the most favorable time for removal of cataract as there are many exceptions.' Nuclear and cortical lamellae shrink at diferent rates of speed, the nuclear shrinking more rapidly. Fissures are formed, are filled with fluid, granular detritus, Morgagnian globules and fat globules, the whole of which forms the liquor Morgagni. In some cataracts when imbibition of intraocular fluids take place, the lens become swollen, pushing the iris forward and causing narrowing of the anterior chamber. Cataracts which develop in the manner described can be readily removed when the liquor Morgagni between the capsule and cortical laminae of the lens in however thin a layer has taken place. In not a few cases this occurs before the anterior chamber is fully restored to normal depth.

"In nuclear cataract, the cortical lamellae are more adherent to the nuclear portion than to the capsule and are removed almost completely with the nuclear portion even when the cortex is transparent to a considerable extent.

"The degree of vision necessary to the individual in order that he may not be incapacitated differs with the vocation. It may be put at twenty fortieths to twenty-two hundredths.

"In the process of development of all forms of cataracts, there is a stage between the loss of useful vision and the condition in which the detachment of the lens fibres from the lens capsule is most easy. This may extend over a few months or a few years. This stage is distressing to the patient and in not a few instances entails hardships on himself and his family.

I began to remove cataractous lens soon after it had reached a degree of opaqueness sufficient to interfere with useful vision, whatever the form of cataract might be, in all cases in which removal was particularly urgent, those cases being excepted in which the lens was much swollen. In almost all cases of the extraction of immature cataract some lens substance remains even after very careful irrigation of the anterior chamber. This does not give rise to serious inflammatory trouble."

Dr. Charles Beard, Surgeon to the Illinois Charaitable Eye & Ear Infirmary wrote in his very delightful Ophthalmic Surgery in 1910:

"The mere fact that a senile lens is even fairly transparent does not of necessity indicate that it is not entirely operable. Indeed it is not the so-called immature cataracts that expose to the graver dangers but the complicated, anomalous and degenerated ones."

Prof. Josef Meller of the University of Vienna writes the most explicit and helpful book on Ophthalmic Surgery that we have. He said in 1912 and again in a more recent edition:

"If a cataract develops in both eyes, the eye with the more advanced lenticular opacity is operated upon as soon as disturbance of vision has progressed to a point where the patient can no longer pursue his occupation, irrespective of whether the cataract is completely mature or not. The extraction of an immature cataract is in no way more difficult than the removal of a fully opaque lens, although the retention of unclouded lens remnants in the eye somewhat complicates the operation. The clinical diagnosis of maturity can refer only to the anterior cortex of the lens and yet the posterior cortical portion may be transparent and fail to pass the chamber even with massage. Any procedure for artificial ripening of the immature lens should be avoided and the performance of the so-called preliminary iridectomy is of no especial advantage and is only indicated in central opacity of the lens in which dilation of the pupil consequent on iridectomy sufficiently improves vision."

He says of monocular senile cataract: "If opacities develop in the lens of one eye while the other eye has good vision, no operation is indicated until the cataract has become completely mature. When this point is reached even though the other eye continues to have normal sight, extraction of the cataract is advisable. There is no valid reason why monocular cataract should not be removed. While the unequal vision of the two eyes may cause temporary discomfort, it is more than balanced by the increase in the field of vision and in the consciousness of a reserve eye in the event of injury or failure of the other. If operation is postponed until vision fails in the good eye, the cataract reaches a condition of over maturity which not only complicates extraction but makes the prognosis less favorable."

The Viennese School does not practice irrigation of the anterior chamber after the main mass of the lens is extracted but contents itself with massaging away the soft cortex. Some soft lens material is no doubt left after any technic and fortunately does no serious damage. Many American and English Surgeons irrigate the anterior chamber with warm boric or normal saline solution, and the American Encyclopedia of Ophthalmology says on page 1764:

"The principles of irrigation is the possibility of converting at the time of operation a surgically unripe into a practically ripe cataract."

The Indian operation of extracting lens in the capsule permits of an early operation and is quite satisfactory if it succeeds. The eye mortality is heavy among white people as vitreous is more likely to be lost by it than in any other technic. I asked the house surgeon at the Royal London Ophthalmic Hospital if this operation was done there and he answered: "We do not guinea-pig our patients." I asked an assistant of Prof. Dimmer's of the University of Vienna the same question and he said "We are always trying to gather better and never worse statistics."

I am foregetting that I am writing about when to operate and not how to operate cataracts.

To conclude, we all prefer to have a cataract case come to us with a fully opaque lens which is not yet hypermature. We prefer that they be senile only in cataract. If they are bordering on physical and mental decay and unless operated upon must sit out many months or a few years in idleness which they will tolerate badly and probably cannot economically afford, I would personally operate the blinder eye as soon as reading or working became difficul tin the better eye. For mechanical reasons the anterior chamber must necessarily be sufficiently deep to permit section of the cornea, so we must wait until the swelling stage has subsided enough. The only other problem is to dispose of soft portions of the cataract which may resist our gentle efforts at operation. Nature sometimes does this completely by absorption but more often a little is caught in the capsule and the incorporated membrane is called secondary or after-cataract. This must be needled when all signs of irritation have subsided a few weeks later. Even when there is no macroscopical evidence of retention of a portion of the cataract at operation, the ephithelia of the capsule itself may proliferate into an obstructing membrane which must be needled. At the Royal London Ophthalmic Hospital needling for after-cataract is done routinely in almost every case irrespective of the condition of the pupil on the assumption that the capsule will probaly proliferate over a long period of years, and should be split while tender and resilient, leaving the pupil black and clear and the operation definitely finished.

I will close by quoting from Fuchs:

"It often happens even in cases in which operation has been well performed, that the result of the operation is impaired by the retention of portions of the cataract. This happens particularly when the operation is done on immature cataracts but by no means fails to occur in those that are mature and hypermature. If the anterior capsule is thoroughly opened, the portions of the lens left behind grow opaque, swell up, and become absorbed. In this case therefore a pure black pupil is ultimately obtained. But if the layers of the capsule become agglutinated early and shut off the remains of lens substance from the aqueous, those remains are not absorbed but persists as a white membraneous opacity called after-cataract. It may also happen that the after-cataract does not develop until later on, the epithelium of the anterior capsule proliferating and inducing a secondary thickening and opacity."

DISCUSSION.

Adolph O. Pfingst: It has not been so very long since there were but two questions to decide in determining when to operate on a cataract; first, whether the individual had a mature senile cataract; second, whether he had money to pay for the operation. Ophthalmology has kept the pace set by general surgeons and hence subject patients with senile cataracts to a careful study of his general as well as the local condition before subjecting him to the operation. In considering the advisability of removing a cataractous lens we have three main problems to consider: first, the local condition, or in other words, the stage of development of the cataract and the consequent degree of impairment of vision; second, the condition of the conjunctiva and tear duct; third, the condition of the patient as a whole, in other words the general condition of the individual.

Returning to the first problem, when to operate, as regards the stage of maturity, this often becomes an economic problem, especially among the working classes where the discontinuance of work over a long period of time creates a hardship on his family. If the patient has sufficient vision to continue his employment it is often advisable to wait a year or even more before operating, even though one lens is mature. As no doubt you know cataract develops practically always in both eyes. Fortunately the development is more rapid in one eye than the other and thus there is sufficient vision in one eye to allow the individual to continue his work while awaiting the ripening of the one most advanced. In such cases the problem is easy of solution. On the other hand, a case where one cataract becomes mature and ready for operation before the other undergoes any development at all or in other words where the individual has perfect vision in this eye, presents a very different and a more difficult problem. As Dr. Dean mentioned in his paper, if we remove the mature lens in such cases and get a good result so that vision in each eye is normal, or 20-20, the two eyes would nevertheless be different inasmuch as the removal of the lens from the operated eye removes the power of accommodation and hence the two eyes would not "work together.' Sometimes these individuals are made quite unhappy by having the cataractous lens removed under these conditions. I have seen a number of such cases in which they suffered such distress from the inability of the eyes to function as one that the operated eye had to be covered with an opaque disc until the other eye became more definitely involved. The cases in which the discussion on when to operate becomes most difficult are those in which the cataracts in the two eyes develop about equally. These cases test the patients of the afflicted as well as the physician. A man whose family is economically dependent on him and whose vision is reduced to the point where he cannot continue his work cannot await the ripening of his cataracts over a long period. The question arises, "how shall we advise such cases?" It has always been my practice under such circumstances to do a preliminary iridectomy and massage the lens with a dull probe to hasten ripening. This method was employed by Dr. Herman Knapp with whom I was at one time associated. In many cases this brings about the desired result. I have on several occasions removed the unripe lens, a method I do not approve as a general practice on account of the danger of iritis complicating the repair. I prefer now to remove such lenses in capsule.

The so-called Smith operation involves removal of the lens in its capsule and hence it makes no difference in this operation whether the cataract is mature or not. However, as stated by Dr. Dean, these operations are not without dangers. As the posterior capsule of the lens is removed and the suspensary ligaments torn there may be escape of the vitreous—in fact, I am convinced that such happens frequently. The operation is advantageous in selected cases. I have resorted to it on ten or twelve occasions, however, I do not consider it an operation of choice as a routine. Most ophthalmic surgeons do not employ the Smith method as an operation of choice on account of the dangers of loss of vitreous.

As to the second problem, it develops upon us to be sure that there is no conjunctival inflammation before subjecting any case to operation. In suspicious cases bacteriological examinations by making cultures from the conjunctival secretion is advisable. The lachrimal drainage apparatus should also be carefully examined to avoid infections from the source. Necessarily we have to determine whether or not we are dealing with a functioning retina or whether the cataract is complicating some trouble inside the eye. It has been only recently that I had the opportunity of watching the development of a cataract in an old lady, the result of a detached retina. As there was no hope of restoring vision my natural advice was against surgery. It is of interest to note that notwithstanding this advice she went elsewhere and had the cataract removed with no result except financial distress. Complications of this kind, or of retinal and choroidal disease, can usually be determined by various methods of examination. Naturally when the retina is not functioning it is useless to remove the lens to restore vision.

The third and last question to be considered is the general health of the individual. Formerly we did not pay so much attention to this as we should have done and I am sure that all of us have at times performed cataract operations on patients who were unfavorable subjects for surgery and sometimes with disastrous results. I am quite certain that before the association between focal infection and inflammatory diseases was established I lost two eyes following cataract extraction in patients with badly infected mouths. I never operate on a cataract without first referring the patient to his family physician for a general examination, as to blood pressure, renal function and other constitutional conditions. If the patient has no family physician I insist upon his seeing some internist for a general physical examination.

A general condition which has always interested the ophthalmic surgeon contemplating the removal of cataract is diabetes. It has always been known that diabetes is often associated with cataract formation. Just why this is so has not been determined, although it is probable that some disturbance of nutrition took place in the lens. When I first entered ophthalmology I recall having heard some of the older oculists say that they paid no attention whatever to sugar in the urine in operating for cataract, because such cases seem to go through the operation and the convalescence about as well as other patients. That has also been my experience. I have in the earlier years of my practice, following the dictates of my preceptors, operated on cataract cases without trying to ged rid of the sugar. Naturally, we now try to get rid of the sugar and while we do not always succeed we at least endeavor to have it reduced within safe limits. The trouble about these cases is not so much the danger of nonunion or suppuration of the wound as it is in the development of some intercurrent trouble during the convalescence, especially retinitis. I had a case of this kind sometime ago in a woman with a high blood sugar and in which Dr. Morris Flexner endeavored to get the patient in an operable condition. She was operated for cataract with perfect result and notwithstanding a continuance of her general treatment for months after the operation she developed retinitis, which terminated in blindness.

Dr. Dean has given us a splendid resume of his subject and I wish to thank him for the admirable way in which he presented it. I think papers such as he has presented should be read before the society occasionally. While his paper was more or less technical and hence was of most interest to ophthalmologists, he brought out many practical points of interest to those active in other departments of medicine. We frequently hear papers and discussions of surgeons and other specialists on subjects in which we are not well versed and are materially benefitted.

Gaylord C. Hall: I have enjoyed Dr. Dean's paper very much, and I think his conclusions in the main are the ones we all try to follow. If I were called upon to answer the question I would say that the time for operation on a senile cataract is when vision of the other eye falls below that which is necessary for the patient to go along with his usual daily routine, then it is time to consider operation, and then provided the local condition about the eye and his general condition are such as to justify the expectation of a favorable result. These cases are exceedingly important. I believe that the age of 55 years is generally conceded about the time, and when the nucleus of the lens is sufficiently firm to extract it even though not mature. In cases of immature cataract it is of course desirable to perform the Smith operation provided one has had sufficient experience with the procedure to justify his confidence in such technique. Unquestionably it does add to the risk of the operation and may be attended with loss of vitreous.

Regarding preliminary iridectomy which has been mentioned: There is another reason for doing a preliminary iridectomy, I think, besides determination of the ripening of the cataract, and that is it enables one to study the psychology of the patient under operation. While it is true that it converts a possible one-stage operation into a double operation, I believe if one eye of the patient has for any reason been lost, and particularly so if it has been lost in a previous operation for cataract, the patient undoubtedly apprehensive and nervous as to the outcome of the second operation, we know that such a patient is not going to be very tractable on the table, and I think I would not hesitate to advise a preliminary iridectomy because it would simplify subsequent extraction. By doing this we eliminate the possibility of hemorrhage into the anterior chamber, and it also gives the patient confidence in that if the irridectomy is successful he feels he can go through the rest of the operation with a good result.

Frank W. Pirkey: I have enjoyed hearing Dr. Dean's paper on this very important subject. He has covered the field thoroughly and so also has Dr. Pfingst in his discussion. In dealing with cataract we must always bear in mind that the individual is an elderly person who is usually not in good physical condition, his eliminative functions are probably impaired, his regenerative powers are below normal, and his ability to withstand the shock of any surgical operation is diminished. When it is considered that we are dealing with an individual of this class, it is sometimes surprising that we secure as good results as we do.

I agree with Dr. Dean that when operating for senile cataract we should always consider the importance of vision in relation to the occupation of the patient. Of course this varies with different individuals. In people regardless of their age who have no occupation and to whom the loss of time means nothing, if they have vision of 20-100 or even less they can see sufficiently well to enable them to go about the streets safely in company with someone else. They are not suffering and in such cases we can afford to wait as long as it may seem advisable before operating. On the other hand, people aged 50 or 55 years who have to work daily to support their families, if they are unable to see well enough to continue their duties they are seriously handicapped and operation should be performed earlier. When ever vision is reduced to the point where the patient cannot continue his work, I think the cataract should be removed as soon as possible.

Another important point mentioned in the paper is the mental attitude of people with cataract. Many individuals look upon cataract as they do upon malignant disease, when told they have cataract they become discouraged and despondent. They often state that they knew of someone who had cataract and was operated upon with complete loss of vision, etc. We must assure such patients that cataract is one of the few lesions about the eye which we can cure, and we will do the best we can for them.

Dr. Hall mentioned one of the worst features in connection with these cases, that is the development of cataract with serious impairment of vision in a person whose other eye has already ben destroyed. In every cataract operation we try to be as careful as possible, but in a person with only one eye every precautionary measure should be used because if anything happens to that eye we have no further chance of securing vision.

The performance of preliminary iridectomy has been mentioned: I think this is by far the safest method of procedure. Irridectomy should first be performed and the cataract extracted later. This gives us an opportunity to ascertain how the patient is going to react to operation, and the extraction can be completed in less time after preliminary irridectomy. As a rule after irridectomy is done the cataract is easily extracted. I have seen cases in which preliminary irridectomy was not performed, and the patient became so unmanageable on the table that a general anesthetic had to be administered before extraction could be accomplished.

William A. Jenkins: I was one of those present at the hospital staff meeting mentioned by Dr. Dean, and we were all very much surprised at his statement about early operations for cataract. It has always been the understanding among physicians, including many of the most prominent ophthalmists, that a cataract was not supposed to be operated upon until it was "ripe." Prior to Dr. Dean's statement I had never heard anything else. I have known several of the older men in Louisville, and also some not so old, say: "Why, grandmother you have a cataract on your eye, when it gets 'ripe' we will remove it. At the staff meeting I suggested to Dr. Dean that I would like to hear a broad, liberal discussion on this subject, and I am very glad to see that all the eye specialists who have discussed Dr. Dean's paper make the statement that the maturity or "ripeneness" of the cataract or complete opacity of the lens is not always necessary before it is safe to remove the cataract. I have had a great many elderly people come to me for advice presenting conditions similar to those Dr. Dean has so well described in the case of the aged man upon whom he refused to operate. It is an injustice to the patient to delay cataract extraction until serious physical and mental ills develop, provided the operation can be performed with safety at an earlier date. If vision can be preserved by early extraction of the cataract, then general practitioners and those who specialize along other lines should be so advised that they may instruct their patients accordingly. It is also an injustice to the surgeon when patients are cautioned to wait, and then expect him to secure favorable results after serious physical and mental impairment has occurred.

I am very glad to have heard Dr. Dean's excellent paper.

George E. Vaughan: I congratulate Dr. Dean upon his splendid paper. As long as fifteen years ago I began disregarding the maturity of cataract in relation to extraction. It makes no difference whether a cataract is mature or immature, if vision is reduced to the point where the patient is unable to continue his work, operation may be safely performed at any time. This was well understood more than thirty years ago when we performed the needling operation on the eye with perfect results. When the cataract is immature at the time of extraction, it is true that some of the cortex may be left in the eye, but this is soon absorbed and no harm results. Any cataract may be safely operated upon regardless of its maturity, other conditions being favorable.

The point mentioned by Dr. Pfingst agrees exactly with my experience. Patients with diabetes are very prone to also have cataract; but extraction may be performed with good results regardless of the diabetes.

A. L. Bass: I am sure we have all enjoyed Dr. Dean's paper. I am glad Dr. Pfingst came along to discuss it, for he said just what I thought and wanted to say while listening to Dr. Dean. In bringing out a few points I want to stress, I will do so via reporting a case or two.

I had a doctor, 87 years old, to come into the office who had not been able to see well for seven years. I thought it funny he being a doctor and not having seen well for so long and did not know what his trouble was. I found out that he was a druggist, but had been practicing medicine in his vicinity for some time. His blood pressure was 180. Urinalysis negative, was in very good shape physically for his years. His light projection was good and pupils dilated with cocaine solution while in the office. His cataracts were hypermature, and there was some low grade plastic iritis along the pupillary margin. In a few days when I was going to do the operation in the hospital I found out atrophia sulphate 1% would not dilate the pupil. I had heard of instances where cocaine would dilate the pupil but atrophia would not, but this was my first experience. Feeling that I had something to gain and not much to lose I went ahead and removed the lens without much difficulty. That evening I catherterized him myself as he was suffering. The next afternoon about 3 p. m. his nurse called me saying he had projectile vomiting. He had been catherterized again. I told her to give him two ounces of castor oil, and when I got out to the hospital, he was picking at the bed clothes and would only work his lips when I would speak to him. Had Dr. George Day come out and give him some Fisher's solution intravenously. His wife wanted to know if I thought he would last through the night, I told her, "Long as there is life there is hope." The next morning when I went into his room and spoke to him, he said: "Good morning doctor." He left the hospital in about two weeks, and in about eight weeks I gave him a glass with which he could read normal and you couldn't hold him, he was going back to his old home to hob-nob with his pals whom he had not seen for so long.

Another case, who had a cataract done at the City Hospital was a diabetic, had a complication which looked like pan ophthalmitis. The other eye at that time had a cataract and the light projection was good. After two or three months treatment by Dr. Fred Speidel for his diabetes, and waiting for the operated eye to quiet down sufficient to permit an operation on the good eye; I removed lens and the eye did as well as any eye could do, but when I went to give him a glass for that eye, I found out he had optic atrophy which had developed in the meantime.

Another case, a man about 63 years of age, with one eye, who had not been able to read for four years; blood pressure 172-100, urinalysis negative. I did a combined extraction and in six weeks I gave him a glass with which he could read 20-30, read type 1.25. His wife said the first thing he noticed was that the women were wearing their skirts shorter than they used to. He wanted to drive his Ford car down in Georgia to see his son. Six months later with his correction he could read 20-30 for distance and type .75 for near. Just the other day, about ten months later, his vision failing on account of the secondary cataract, I decided to needle his eye when Dr. Jenkins told me he had a blood pressure somewhat over 200. Of course I would not touch his eye until his blood pressure came down.

Relative to needling the secondary cataracts, Dr. Butler, an English surgeon, who has done quite a large number of extractions, says he does not needle if the patient has a fair vision. He does not believe in tempting Providence, as he has lost a few eyes as a result of complications following needling. It is very important to have the patient "ready to wear" before operating; that is, take blood pressure, have urinalysis made and look for all possible foci; for if you have a complication or two, you will be so impressed you will not hesitate to look for them afterwards.

It is interesting to note the psychological effect on these patients, they are most appreciative, after becoming blind and getting to see again.

Walter Dean (in closing): I thank the gentlemen for their liberal discussion. I do not wish to make the point that immature cataracts should be rushed into operatively. Neither do I like the other extreme of waiting until the cataracts are hypermature, the eyes otherwise disorganized and the patients bad physical and mental risks.

I recently saw a patient who had been erroneously advised that her cataract would not be ripe so long as she could see light. She had become so infirm and her eyes so complicated that it would probably be better judgment not to operate upon her eyes at all.

I recently talked with an ophthalmologist from a western state whose group had an enormous clientele in three states. He told me they had four cases of postoperative mania in the last year.

I do wish to make the plea that we operate upon our cataract patients just as early as thoughtful surgical judgment will permit.

CHRONIC APPENDICITIS WITH ADHESIONS AND STASIS.*

By Mischa Casper, M. D., Louisville.

Mechanical intestinal stasis associated with appendicitis is becoming more and more common, or rather because of improvement in diagnosis we are finding it much more frequently than formerly.

Any discussion on appendicitis is always in order as it is one of the commonest of surgical conditions now adays. That the last word on appendicitis has not been said is evident from the division of opinion of the medical profession as to the existence of chronic appendicitis.

The essayist wrote an article on chronic appendicitis a few years ago, which was published in the Kentuky Medical Journal, and enumerated five distinct forms of the disease.

The type under discussion in this paper may be culled from group four of the above five classes, viz: "This class includes visceral misplacements, bands, kinks, and pathological membranous formations with attendant stasis and a certain amount low grade peritonititis, all of which overshadow the attending chronic appendicitis."

The low grade peritonitis in previous attack or attacks may have been mild, though sufficient to cause an adhesion of ileum to mesentery, and partial obstruction. Lane's band causing a kink gives us a similar complex and the two are so nearly alike that for all practical reasons they may be considered identical. Also it is as yet a mooted question whether or not Lane's kink is inflammatory of embryological, or both. No doubt some of the bands are congenital, first doing little damage and later by repeated inflammatory attacks aggravate the condition into one of actual disease producing symptoms of three-fold nature.

Ist: Inflammatory and local, producing reaction, pain and mild peritonitis; 2nd: obstructive syndrone, which may account for many obscure intra-abdominal conditions or gaseous distention, stasis and auto-intoxication, from headache to neurasthenia; 3rd: remote conditions, as anemia, emaciation, debility, anorexia, pylorospasm and its many attendant trains of symptoms, poor health, infections of focal nature, obscure colics, etc.

The diagnosis is far from easy, and C. H. Shutt, in a recent article on a similar condition (pre-colic membrane), aptly remarks: "Right iliac distress, tenderness over McBurney's point, chronic indigestion, visualization of the appendix by the x-ray, weakness and general lack of energy, will not provide a diagnosis for appendectomy with relief of symptoms in a satisfactory percentage of cases."

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*Read before the Jefferson County Medical Society.

Yet the above are about all we have upon which to base a diagnosis. We must examine these patients repeatedly and observe them closely. In cases with a frank obstructive lesion the x-ray is of real assistance, and especially careful study under the screen, for delay in six hour meal in the ileum, point tenderness, filling and retention of barium in the appendix. Pylorospasm, with or without hyperacidity, will usually be noted and if it disappears on administration of an antispasmodic it is quite valuable, not forgetting that other condition cause it reflexly, also.

Constipation is a constant symptom, though it like other symptoms, as indican in urine, tympanites, headache, indigestion, asthenia, etc., aré only sugestive symptoms. Any set of symptoms may be unreliable and no guarantee of our diagnosis comparable with our surety of diagnosis of acute appendicitis.

Our prognosis in these cases will be governed by the thoroughness with which all intra-abdominal pathology is eradicated. The removal of the chronically diseased appendix (and according to pathologists about 80% of these show pathology) will not cure very many patients.

So under treatment if we operate we must insist on a large incision that all the right side of abdomen and still better also all the left side be thoroughly explored.

Given the occasional operator, a diagnosis of chronic appendicitis and a small incision and you have an infallible combination for mischief and the making of a sick person worse.

Many other conditions quite as important as stasis of the ileum and far more common, may exist, such as Jackson's membrane, precolic bands, cholecystitis, Meckel's diverticulum, duodenal ulcer, etc. The after treatment of any kind of pathology that causes stasis is quite as important as the relieving of obstruction.

This must be done by the internist who should be familiar with the mechanics at fault. Diet of course is the big idea to get permanent results. It cannot be left to the whims or even the appetite of the patient, but must be rigidly supervised for a long period of time. No hard and fast rule can be used routinely, but each case is a law unto itself. The importance of diet in health and disease has never been properly handled by the profession, but left to the vagaries of patients. An awaking to diet problems among the profession looms large in the offing.

The following three patients culled from several are illustrative of the case at point. Two cases similar to following have just left the hospital:

Case 1. Mrs. L. E. P., aged 23, enameler and thus a worker in lead, came to hospital in December with acute intestinal obstruction, and gave following history: Always healthy except subject to colic, thought to be lead colic. Present attack began four days ago and at first thought it due to old colicky condition. He grew worse and twenty-four hours before entering hospital began to vomit. He had been unabl to refecate for past forty-eight hours.

Examination revealed "acute abdomen" greatly distended, much pain and evidence of general peritonitis.

Operation disclosed intense adhesion of terminal six inches of ileum which had been site of former peritonitis. Appendix actively though secondarily involved and not the cause of the peritonitis. The ileum was adherent to its own mesentery in such a manner that it rolled on itself and completely obstructed the passage of gas and intestinal contents. Evidently it had been partially obstructed quite a while before complete occlusion. Adhesions released all raw surface peritonized, appendix removed and abdomen filled with 400 cc .of glucose solution and closed without drain,—a method used in a few cases but since abandoned and return to use of free drainage.

This boy did well and was about ready to leave hospital when he again began to show obstructive symptoms which rapidly grew into complete obstruction, in spite of active treatment, consisting mostly of repeated and large enemata. Operation this time revealed recurrence of the adhesions to terminal ileum, a part of which was resected and a new Kellog ileo-cecal valve made to transverse colon. Patient required a second resection of forty-eight inches of small intestine two months later and had a rather stormy time, finally getting well and is now doing hard farm work.

Case 2: Mr. L. V., farmer, aged 45, subject to epilepsy for thirty years. One sister died of tuberculosis, otherwise family hostory negative. Has weak eyes due to error of refraction. Had "stomach trouble" for years and indefinite "indigestion," colic and bloating of abdomen. Been rendered physically totally incapacitated for three years.

Examination revealed emaciated, anemic, asthenic, patient with very tympanitic abdomen. Latter relieved after heavy purge. Blood pressure 110-80. Urine normal.

Exploration was requested by patient and accordingly done, and disclosed chronic appendicitis with adhesions involving about six inches of ileum producing obstruction in small intestines to both gas and contents. Appendectomy and band of adhesions released, raw area peritonized.

Patient had much post-operative distention, but finally made a good recovery.

Case 3: Mr. V. L., aged 31, farmer, had much trouble with tonsillitis when young, had one tonsil removed when thirteen years old followed by hemorrhage; says he bleeds easily, coagulation time less than three minutes. Had an attack said to be appendicitis in May a year ago. Remained sore on right side of abdomen ever since and unable to work. Has "indigestion," can't belch, complains of "knot" under short ribs. Present attack began ten days ago with burning in short ribs on right side, couldn't vomit. Constipated, only defecated twice in the past week. Operated on August 30, with following findings:

Many adhesions, bands and kinks, including Jackson's membrane extending along entire ascending colon and adhesion from colon to gall bladder. About a foot of terminal ileum fixed by an extensive band extending below the brim of the pelvis, near the median line on the posterior wall. Glands enlarged around common duct but no calculi found. Exploration of stomach and duodenum negative for ulcer. Appendix showed evidence of recent acute attack, was much thickened and contained an enterolith. It also had numerous adhesions from previous attacks. Operation consisted of releasing adhesions of colon to gall bladder and all of the ascending colon released from pre-colic membrane. Released band of ileum, peritonization to cover raw surface of latter space which was about six inches square. End of cecum was also used to help cover this raw surface. Finally an omental graft over it all was used to further peritonize this area. Appendectomy concluded the operation.

DISCUSSION.

E. S. Allen: I occasional see cases such as those described by Dr. Casper. I would like to ask him what the blood count was in these patients at the time of operation. (The leucocyte count was low in all three of them.) It seems to me these cases should be classified under the heading of obstruction from adhesions instead of appendicitis. I have seen many cases of that type. I saw a patient quite recently with obstruction of the terminal colon the result of adhesions following appendicitis. The man gave no history of appendicitis, but he probably had some leakage with the resulting formation of adhesions. We see so many cases of postoperative adhesions in inflammatory intra-abdominal lesions that it occurs to me I would classify them as obstruction from adhesions and not from appendicitis. My idea of the paper, from the title given on the program, was that Dr. Casper expected to speak of acute appendicitis involving the ileum, with inflammatory reaction, infiltration, edema and acute obstruction, with primary history of appendicitis and agglutuations.

The essayist spoke of the development of peritonitis not of bacterial origin. My experience has been that we seldom see peritonitis except from bacterial invasion or chemical peritonitis from ulcer.

Dr. Casper is to be congratulated on the operative work he did in the first case reported, where he performed two or three intestinal resections. Usually resections are performed too late in the course of obstruction to be of benefit.

The paper was very interesting and I enjoyed it immensely.

Guy P. Grigsby: I am rather prone to assume a conservative attitude in the management of patients who present obstructive symptoms following operations for acute appendicitis. I believe it is a mistake to administer purgatives in these cases. No doubt much harm is often done by our desire to secure early alvine evacuation in these cases. If these patients are kept perfectly quiet with morphine, food and water withheld, given glucose solution intravenously, I believe they can be tided over a period of five to ten days if necessary and secondary operation avoided. This happened three or four times in my experience during the last year where it looked as though secondary operative was almost imperative, but by utilizing the form of treatment mentioned these patients all recovered and have remained well since. I think, as I said before, that by active attempts at purgation, either by massive enemata or by the giving of purgatives by mouth, we promote and frequently excite acute obstruction; whereas if the symptoms are allowed to subside by rest, by the administration of morphine, by withdrawal of food and water or anything that may incite peristalsis, by maintaining the patient's food and water balance with glucose solution, in many of these cases the patient may be saved a secondary operation, which, in my hands, has always been attended by rather disastrous results.

Like Dr. Allen, I wish to congratulate Dr. Casper on the result secured in the first case reported, where he operated upon the patient several tmes and finally effected a cure.

As to the question of appendicitis and adhesions in the so-called chronic cases. I have no doubt in some instances where the patient presents evidences of chronic appendicitis the trouble is primarily due to slight obstruction from adhesions. The appendix has ceased to be the trouble-maker and the symptoms are due to ad-lesions. I cannot too strongly endorse Dr. Casper's advice in cases of this type to make a wide incision thus permitting thorough exploration of the entire intestnal tract so far as may be possible. This can be done through a right rectus incisions without any difficulty. Care should also be exercised in th edivision of adhesions. It is fairly easy to determine which bands are causing or are likely to cause obstruction. In other words, we should not deperitonize any more of the intestine than is absolutely necessary. Some of the adhesions, especially the so-called Jackson veil or Jackson membrane may frequently be safely left intact where there is no distinct evidence that it is giving or may give rise to obstructive symptoms.

I think the foregoing points are well worth bearing in mind, and I am sure so far as I am personally concerned in the so-called acute cases that until I have some experience to change my present opinion, I shall be very conservative in the treatment of these cases.

Mischa Casper (in closing): I thank the gentlemen for their discussion. Perhaps the title of my paper, as it appeared on the program, is rather misleading. An appropriate title would be: Chronic appendicitis with adhesions and stasis. I made no reference in the paper to acute appendicitis, but discussed chronic cases with adhesions, inflammatory bands, etc., producing obstructive symptoms. I believe this answers Dr. Allen's objetion.

The diagnosis of chronic appendicitis is rather more difficult than an acute attack because the symptoms are less evident and not so violent. In the first case reported the patient not only had general peritonitis, but the terminal ileum and mesentery showed distinct evidences of gangrene and this was a causative factor in the obstruction. Adhesions recurred in such way as to cause further obstruction requiring secondary resection of the ileum and the formation of a new valve into the colon. The fact that secondary operation became necessary only a few days after the original procedure emphasizes the importance of prompt intervention in these cases, because this patient had occlusion of the circulation, from a clot in one of the veins. There was also gangrene over a large area of the small intestine requiring resection of forty-eight inches, the greatest amount I have ever resected. There was complete occlusion of the circulation, and also obstruction to the passage of gas and intestinal contents, with much toxic material no doubt being absorbed.

Dr. Grigsby mentioned a very important point in dealing with adhesions of any kind in the abdominal cavity. There are two kinds of adhesions, (1) those that are doing harm, and (2) those that are not. Adhesions that are not doing doing any harm should be left strictly alone, because there is always a tendency toward reformation, and if an adhesion that is doing no harm is removed it may be replaced by one that is very harmful. That is a valuable point to be borne in mind in surgical operation for adhesions. We should try to locate the adhesions that are doing harm by careful study under the screen after a barium meal, and be certain to separate the ones that are doing harm, those that are not should be left undisturbed.

SOME MORAL PROBLEMS PERTAINING TO OBSTETRICAL PRACTICE IN CATHOLIC HOSPITALS.*

By Walker Gossett, M. D., Louisville.

"A man enjoys religious liberty when he possesses the free right of worshipping God according to the dictates of a right conscience, and of practicing a form of religion most in accordance with his duties to God. Every act infringing on his freedom of conscience is justly styled religious intolerance. This religious liberty is the true right of every man, because it corresponds with a most certain duty which God has put upon him."

When is the human fetus viable? When it is capable of living outside of the uterus. At what period is it lawful to effect premature delivery of the fetus as a means of saving the mother's life? Only when the fetus is viable; that is, at the end of the 26th week of gestation in hospitals properly equipped to care for the newly born. In private practice, under the ordinary conditions, not before the end of the 28th week. Since it is practically impossible, in some cases, to determine the date at which pregnancy has begun, if a doctor has an honest doubt as to whether the fetus is in the 25th or 26th week, is it lawful for him to effect premature delivery at this time, if he judges that such is necessary to save the life of the mother? Yes, it is lawful in hospitals properly equipped.

What is direct abortion? It is that which is procured as an end, or as a means to an end, in other words the direct killing of the fetus. Is it ever lawful for any purpose whatsoever to procure direct abortion? No.

The removal of an inviable fetus. If it is morally certain that a pregnant mother and her unborn child will both die if the pregnancy is allowed to take its course, but if, at the same time, the physician is morally certain that he can save the mother's life by removing the inviable fetus, is it lawful for him to do so? No, it is not. Such a removal of the fetus would be direct abortion. In case of pernicious vomiting, which endangers the mother's life, is it ever lawful, as a means of saving the mother's life, to empty the uterus before the fetus is viable? No, for such a procedure would be a direct abortion. Such is the same in cases of eclampsia before the fetus is viable. After the fetus is *viable* in such cases it is lawful.

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*Read before the Louisville Obstetrical Society.

If the membranes rupture before the fetus is viable, is it lawful to administer drug to bring on abortion? No. As long as child is alive, not by drugs or any other means.

Hemorrhage from placenta previa that endangers the mother's life, *before* the fetus is viable, is it lawful to empty the uterus as a means of checking the hemorrhage and thereby saving the mother? No, because to do so would be to procure direct abortion. Any hemorrhage which endangers the mother's life may be controlled by tamponning the vagina: this is not a direct attack on the child. If the bleeding persists with separation of the placenta and death of child it is not due to any direct attack on the life of the child, but as a result of abnormal conditions within the uterus; the vaginal tampon protects the mother and gives nature a chance to save the child if such be possible; if such be impossible the removal of the pregnancy products can be undertaken in safety to the mother when it is certain that the fetus is dead.

This thought and principle applies both to accidental hemorrhage and to placenta previa. The distinction is that packing the cervix or uterus would be a direct abortion since abortion inevitably follows; while packing the vagina offers a possibility of saving the fetus, controls the hemorrhage insofar as danger to mother is concerned and is not of necessity inevitably followed by abortion. In cases of threatened abortion, in which the hemorrhage does not actually endanger the woman's life, it is not lawful to use the tampon.

In cases of threatened abortion the cautious administration of morphine is lawful, even though its use involves a real danger to the child.

As to operations upon the pregnant woman. Any operation that is necessary for the welfare of the mother and does not have as a direct result the death of the fetus is lawful. The fetus is present in the mother's uterus as the result of her own free will and such consequently can not be considered in the light of an aggressor. The fetus has a right to life equal to that of the mother since both are living human beings; morally one may not be sacrificed that the other may benefit by such act. If however conditions arise, such for instance as appendicitis, cholecystitis, ovarian cyst with twisted pedicle, which threatens the life of the mother, operation upon such to save the life of the mother is lawful, even though abortion may result, since the loss of the child's life is an indirect result of such operation and not the result of a direct attack upon its life. In the case of ruptured tubal pregnancy or of tubal abortion resulting in the death of the fetus in extra-uterine gestation operation is lawful.

In the presence of an unruptured tubal pregnancy there is a difference of opinion among theologeans, some holding as unlawful the removal of such. This presupposes the possession of greater knowledge and skill than is accorded to most physicians, namely the ability always to recognize tubal or ectopic pregnancy and further to know whether or not such contains a viable fetus.

It is widely held that such a pregnancy constitutes an abnormal or pathological condition in which the presence or absence of a fetus and further whether it be living or dead, constitutes a matter of doubt, consequently that such an abnormal or pathological mass offering danger to the life of the mother may be lawfully removed, the operation of removal being undertaken not for the purpose of destroying any fetus which might be present but to remove a pathological mass or tumor and in the event of a living fetus being present its death is not the result of a direct attack upon it but as an indirect result of the maternal pathology. If an ectopic gestation has progressed to the stage where a living fetus may be recognized operation should be deferred until the period of viability.

Sterilization to avert a future danger is not lawful.

At the time a caesarean section is performed, the uterus gives evidence of being infected, it is lawful to remove it, but never lawful to remove an uninfected uterus in order to forestall the danger of infection or produce sterility.

At what period is it lawful to effect premature delivery of the fetus as a means of saving the mother's life? Only when the fetus is viable.

What is indirect abortion? It is an abortion that results from the employment of means that are used for some other end than the expulsion of the fetus, although it is foreseen that they may unintentionally cause the expulsion of the fetus. In other words, is it ever lawful, under any circumstances, to administer a treatment to a pregnant woman, or to perform an operation upon her, that might cause an abortion, or might result in a killing of the fetus? Yes, it is lawful. During pregnancy, before the fetus is viable, if a woman is suffering from an illness that does or does not endanger other life, it is lawful, in seeking to relieve such an illness, to administer a treatment that involves only a slight risk of causing an abortion or if indirectly resulting in the death of the fetus.

In a case of threatened abortion before viability, in which the hemorrhage does not actually endanger the woman's life, it is not lawful to use a tampon. In an inevitable abortion, in which the hemorrhage does endanger the mother's life it is lawful to use a tampon.

In a case of a threatened abortion the cautious administration of morphine is lawful even though its use involves a real danger to the fetus.

If during pregnancy a woman has a tumor and it grows to such an extent, before the fetus is viable, as to endanger the mother's life, it is lawful to excise totally the impregnated uterus, if this is the only means left of saving the mother's life, because the death of the child is indirect, not direct. The removal of the fetus is not made, in any sense, a means of curing the mother, neither is its removal the object of the operator or the operation. The fetus might be removed from such a uterus and the danger to the mother's life would still endure. It is not the presence of the fetus in the uterus that endangers the mother's life but the presence of the tumor. Also if a carcinoma of the pregnant uterus developed during pregnancy before the child is viable it is lawful to operate.

It is never lawful to perform Embryotomy, Craniotomy, or any other operation directly destructive to the life of the fetus, whether the fetus is viable or inviable.

During a delivery, the child dies, is it lawful to complete your delivery of the dead child in any manner that you may see fit, as embryotomy, craniotomy, etc.? Yes, it is lawful if you are positive the fetus is dead. In such a case would advise with the Sister in charge of the delivery room.

Catholic doctrine teaches that baptism is necessary for the full enjoyment of heaven and further that as soon as the ovum is fertilized, a life separate from that of the mother exists which possesses a soul; consequently in any medical or surgical illness which results in the premature expulsion or removal of the fetus, baptism should be administered to the latter before its death when such is possible. Premature delivery before the period of viability, removal of the pregnant uterus on account of the presence of tumor, removal of pelvis mass which proves to contain an ectopic fetus are instances in which this can and should be done, in each giving the fetus to the Sister in charge, as soon as it is removed from the mother, for the performance of this rite. In the event of ectopic or uterine gestation removed for cause, the mass is to be opened immediately upon removal from the mother and the fetus exposed to view for this purpose.

In conclusion I would advise that the religious beliefs of catholic patients must be taken into consideration where there are conflicts with obstetrical practice. Also when in doubt concerning some moral problem consult the chaplain in charge of the hospital. If an emergency case then consult with the Sister in charge of the delivery room or operating room.

Father Finney of the University of Dallas, has been quoted fully, and I have advised with the Sister Superior of the St. Joseph Infirmary and with Dr. Irvin Abell pertaining to the contents of this paper.

BOOK REVIEW

THE SPRINGTIME OF PHYSIC. By Laurance D. Redway, M. D., is a gentle and diverting outline of the early history of medicine and surgery of interest as well to the public as the medical profession It is replete with subtle humor and broad satire. The author in dealing with the philosophy of Hippocrates, Asklepias and Galen, contrasting it with the modern rationalistic system seeks the answer to the question: "whether the humoral conceptions of a former age have been irrevocably replaced by the humorless convictions of a later one."

For the first time light is shed on the boyhood and origins of Asklepias and Galen, and the manner in which these influenced their later work is delightfully and sympathetically set forth.

The author's researches have brought to light again for the first time, the poetical work of Hippocrates, the great discoveries resulting from his Arabian and Egyptian travels, and his views on prohibition.

The friendship of Galen and Marcus Aurelius and its results are touched upon deftly, as are the love affairs of the former.

In fine, the book is a comprehensive survey of the principal personages and high lights in the development of medicine and surgery from earliest times through the Golden Age of Rome.

The book, handsomely bound in cloth, stamped in gold, sells for $2.00 per copy and may be obtained from the publisher. Int. Journal of Surgery Co., 18 East 41st Street, New York.

WOMAN'S AUXILIARY NOTES

RICHMOND

The next annual meeting of the Woman's Auxiliary, Kentucky State Medical Association, will be held in Richmond, September 10-13, 1928.

Begin now to plan for Richmond.

NOTES FROM THE NATIONAL.

By Mrs. A. T. McCormack.

Minneapolis welcomed the American Medical Association and its Woman's Auxiliary with open arms at the 1928 Annual Convention, held June 11-16.

St. Paul, the other member of the Twin Cities, joined wholeheartedly in extending gracious greetings and hospitality.

For every available hour, the Woman's Auxiliaries to the Hennepin County and to the Ramsey County Medical Societies graced with generosity and charm the delightful hospitality which they had provided for the members and guests from almost every state in the Union.

The Executive Board meetings and the General meetings were especially interesting. Of particular note was the Health Education Report made by Mrs. Geo. H. Hoxie, Kansas City, Mo., assisted by Mrs. A. L. Skoog, Kansas City, and Mrs. H. B. Triggs, Fort Worth, Texas. Also, the Hygeia report by Mrs. A. B. McGlothlan, St. Joseph, Missouri. Both of the Hygeia prizes offered by the President, Mrs. J. O. McReynolds, were earned by and awarded to Missouri—the State Auxiliary receiving the one hundred dollora ($100.00) prize and Jackson County Auxiliary, the fifty dollar ($50.00) prize.

This coming year another prize is offered by an "Unknown Friend" through Mrs. J. O. McReynolds. The prize is to be awarded to the State Auxiliary sending in the first one thousand (1,000) subscriptions to Hygeia after September 1, 1928.

The State Auxiliary then may award the prize —a new Ford car or a trip to Europe—to the member of a physician's family sending in the largest number of subscriptions ninety days after the award to the State.

More information will be available later and here is a prize well worth working for.

Among the Kentucky members present were: Mrs. J. T. Reddick, Paducah; Mrs. H. M. Meredith, Scottsville; Mrs. Hoy Newman, Bowling Green; Mrs. C. E. Kidd, Paducah; also Mrs. Irvin Abell, Mrs. A. L. Bass, Mrs. P. E. Blackerby, Mrs. George A. Hendon and Mrs. A. T. McCormack, Louisville.

Again, for the third consecutive year Kentucky was honored in the election of Mrs. Irvin Abell as Treasurer.

Following is the roster of officers for the ensuing year :

President—Mrs. Allen H. Bunce, Georgia.

President-Elect—Mrs. Geo. H. Hoxie, Missouri.

1st. Vice-President—Mrs. Evarts V. DePew, Texas.

2nd. Vice-President—Mrs. David Parker, New Hampshire.

3rd. Vice-President—Mrs. Horace Newhart, Minnesota.

4th. Vice-President—Mrs. Frank Cregor, Indiana.

Treasurer—Mrs. Irvin Abell, Kentucky.

Secretary—To be appointed by the President.

Mrs. A. T. McCormack was appointed Chairman of Organization, following Mrs. Wayne Babcock of Philadelphia.

Reports from the states showed increasing growth and activity. Fields of usefulness are broadening and enthusiasm is increasing. Members of the American Medical Association are enthusiastic about the Auxiliary. Mrs. McReynolds was warmly received when she made her report before the House of Delegates Tuesday morning.

Honor guests at the President's luncheon table on Wednesday at the Country Club were: Dr. Wm. S. Thayer, President; Dr. Jabez Jackson, Past-President; Dr. J. H. J. Upham, Trustee; Dr. J. O. McReynolds and Dr. A. T. McCormack, Delegates to the American Medical Assocation. Following the luncheon these gentlemen delighted their Auxiliary audience with happy reminiscence and wholesome advice.

A new project which Mrs. McReynolds has initiated is the motion picture library. Through the State Auxiliaries she hopes to make good health motion pictures available to county auxiliaries and various women's groups. One picture "Too Many Pounds" shown at the luncheon meeting at the Lafayette Club on beautiful Lake Minnetonka was most amusing and instructive. These pictures require but fifteen minutes for a showing. More information on this subject will be available later.

Emblem pins for the President and President-Elect and the Past-Presidents were presented this year by the National Organization. These pins of platinum, dainty in design and of exquisite workmanship engraved with the initials of the Auxiliary and date of the year in which the President served and set with diamonds show half of the Caduceus—the winged staff of Mercury entwined with serpent—the physicians emblem. All three of the Past-Presidents were present. Mrs. C. W. Richardson, Washington, acting as Master-of-Ceremonies, graciously decorated Mrs. J. O. McReynolds, President, Mrs. S. C. Red, Houston, Mrs. Seale Harris, Birmingham; and Mrs. F. P. Genenbach, Denver, Past-Presidents, with the beautiful emblems. Later, when Mrs. Allen H. Bunce was installed as President, Mrs. McReynolds removed the President's pin from her own breast and transferred it to Mrs. Bunce who then pinned a Past-President's pin on Mrs. McReynold's breast, and the President-Elect's pin on Mrs. George Hoxie's breast. It was a pretty ceremony.

One piece of very excellent work initiated by the National Organization and splendidly developed by the Minnesota women, under the leadership of Mrs. F. L. Adair, Minneapolis, was the Auxiliary Coffee Shop at the Auditorium, located several blocks from the hotels and restaurants. Here, the Exhibit and all of the Section Meetings were held. Beginning with only a huge, bare room with no equipment, Mrs. Adair and her splendid corps of Auxiliary members, produced an attractive and efficient lunch room where over a thousand physicians lunched and dined daily.

The dinners, luncheons, tea parties, breakfasts, musical programs, theatre and drives through the cities and beautiful country side dotted with lakes were delightful and aided in the establishment of new friendships and in the closer relationship with old friends.

It is a privilege and a pleasure to attend these meetings of physicians and their wives.

BOOK REVIEWS

DIABETES AND ITS TREATMENT BY INSULIN AN DIET—A Handbook for the Patient. Fourth revised and enlarged edition. By Orlando H. Petty, M. D., Professor of Diseases of Metabolism in the Graduate School of Medicine, University of Pennsylvania, Physician in charge of Department of Diseases of Metabolism, Philadelphia General Hospital, etc. With an introductory foreword by John B. Deaver, M. D.

In no way intended as a substitute for the physician, this little volume is of real value to the paient in that it defines diabetes, gives the causes, suggests methods of prevention, and outlines in detail the diet to be followed, to the end that comfort and efficiency be not disturbed.

F. A. Davis Company, Publishers, Philadelphia. Price, $2.00.

DISEASES OF THE INTESTINES AND LOWER ALIMENTARY TRACT. By Anthony Bassler, M. D., F. A. C. P., consulting Gastro-enterologist, St. Vincent's, Peoples, and Jewish Memorial Hospitals, New York City; Visiting Gastro-Enterologist New York Polyclinic Hospital, etc.

A book dealing with digestion below the pylous, and disorders and diseases of the structures involved in it, which, in the opinion of the author, are of greatest clinical importance. The author's treatment of his subject matter is very complete. Beginning with topographical and histological anatomy, physiology and chemistry, he carries through giving the function and disfunction of the intestines, gall-bladder and ducts, liver, pancreas, rectum and anus.

Third Edition. Price, $9.00. F. A. Davis Co., Publishers, Philadelphia, Pa.

HAY-FEVER AND ASTHMA, THEIR CAUSE, PREVENTION AND TREATMENT. By Roy M. Balyeat, M. A., M. D., F. A. C. P., Instructor in Medicine and Lecturer on Allergic Diseases in the University of Oklahoma Medical School; Consulting physician to St. Anthony's Hospital and the State University Hospital; member of the American Association for the Study of Allergy, etc.

The author treats his subject very thoroughly, writing so that it may be understood by the layman.

The various causative factors are discussed as to distribution and prevalance. Methods of determining the cause, methods of treatment are carefully given. The book is made more instructive by the inclusion of case records of these conditions.

Second Edition. Price, $3.50. F. A. Davis Company, Publishers, Philadelphia, Pa.

NUTRITION AND DIET IN HEALTH AND DISEASE. By James S. McLester, M. D. Professor of Medicine at the University of Alabama, Birmingham.

Octavo of 783 pages. W. B. Saunders Company, Publishers, West Washington Square, Philadelphia. Price, Cloth, $8.00 net.

Dr. McLester has produced a "working book" which gives clearly just that information on diet which the practitioner constantly needs. He has arranged it in this very practical form: First, he tells how the various foodstuffs are assimilated and their subsequent influence on the organism; second, he analyzes man's nutritional needs both in health and disease, giving detailed consideration to the practical arrangement of the diet.

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Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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Annual Meeting. Richmond, September 10, 11, 12, 13, 1928

COUNTY SOCIETY REPORTS

Franklin: At a called meeting of the Franklin County Medical Society, held in the Writing Room of the Capital Hotel on April 20th, 1928, to take action on the death of Dr. F. W. Mastin, the following members were present:

Drs. Darnell, Youmans, Ginn, C. T. Coleman, Roemele, Demaree, Stewart, Budd, Patterson, Travis, Heilman and Minish.

Dr. Youmans, the President, presided. On motion made by the Secretary, seconded by Dr. Roemele and carried, the President appointed a floral committee, of which he was Chairman, Drs Roemele and Stewart members, who were to select a suitable floral design for the funeral of Dr. Mastin. A committee on resolutions was appointed by the president. Members of this committee are: Drs. G. A. Budd, C. T. Coleman and L. T. Minish

On motion made by the Secretary and duly seconded and carried unanimously, each member was assessed $1.00 to take care of current expenses of the Society. Members paying were: Drs. Darnell, Lyons, Youmans, Ginn, C. T. Coleman, Roemele, Demaree, Stewart, Budd, Patterson, Travis, Heilman, Minish and Coblin.

A motion was made by Dr. Roemele which was seconded and unanimously carried that just after the regular program of the May 3rd meeting that a memorial meeting of the Society be held in honor of our deceased member, Dr. F. W. Mastin.

L. T. MINISH, Secretary.

Resolutions of the Franklin County Medical Society on the Death of Dr. Flora G. Mastin.

Dr. Flora G. Mastin, an honored member of the Franklin County Medical Society, departed this life on the 19th day of April, 1928. Dr. Mastin had been a long time member of the Society, and had very agreeably and acceptably served as its President during the year 1913, and as its Secretary for the years 1920 to 1927, inclusive.

It is to be regretted that this noble woman who had labored unceasingly and unselfishly in the practice of her profession; in alleviating the pains and sufferings of her fellow mankind, should have been taken just at a time when she was in the prime of life, and when her usefulness as a member of her profession was at its greatest, and when the future held so much for her, but we must all bow in humble submission when the grim reaper selects the unheralded hour for his visitation. It is not for us to know why our friend, companion and fellow member was cut off in the prime of life and in the outset of what appeared to be a greater field for usefulness and service. The ways of Providence are as a sealed book to mortal mankind, and work for the best.

Dr. Mastin was a woman of high and noble instincts, which qualities were exhibited in her daily life and which were carried into the practice of her profession; she was conscientious in duty, painstaking and effective, and enjoyed the highest confidence of her associates and friends.

In her passing this body loses an honored and highly respected member; her two sons a devoted mother, and the public a useful and faithful citizen and servant.

We offer this as our tribute of love and respect to our departed friend and fellow member.

G. A. Budd,
L. T. Minish,
C. T. Coleman.

Perry: The Perry County Medical Society met at its regular session on May 14, 1928, with twenty-one of its thirty-five members present and in appreciation of the work done for Eastern Kentucky Flood Relief and especially that work done in Perry County, wish to express thanks to those responsible for making this relief possible.

A motion was made, seconded and unanimously passed that the Medical Profession of Perry County are grateful to the United States Senate and the House of Representatives for this appropriation.

The Perry County Medical Society feels, however, that the energy, push and tenacity of a few people who have always been intensely interested in Kentucky and particularly Eastern Kentucky, deserve special mention.

We therefore, express our commendation to Hon. Katherine Langley, Hon. J. M. Robsion, Dr. A. T. McCormack, Hon. Fred M. Vinson and Senator F. M. Sackett.

It is ordered that a copy of these proceedings be sent to each of the above named persons.

N. G. RIGGINS, President.
J. M. RAY, Secretary.

IN MEMORIAM.

Whereas, the Heavenly Father, in His divine way has called from our ranks our co-worker and friend, Doctor Campbell H. Johnson, and

Whereas, Doctor Johnson by his gracious personality endeared himself to all, and

Whereas, Doctor Johnson, by his liberality gave relief to many who were unable to pay, and

Whereas, by his mind of medical information was an honor to the profession, and

Whereas, he by his innate honesty never attempting or undertaking the treatment or an operation unless he knew himself to be efficient in that particular line, but unselfishly referring it to others in the same line and therefore a competitor, in his home town, and

Whereas, he thus by nature, education and professional fitness was one to be emulated, therefore, be it

Resolved: First: That our community has lost a valuable citizen and our profession one of its members of the highest type.

Second: That a copy of these resolutions be spread upon the minutes of the Southwestern Kentucky Medical Society and a copy be sent to the State Medical Association and one to the bereaved companion, Mrs. Margaret Clark Johnson.

C. E. PURCELL, Chmn, of Com.
L. P. MOLLOY, Secretary.
Southwestern Ky. Medical Association.

Daviess: The Daviess County Medical Society met at the City Hall, Owensboro, May 22, 1928 at 7:30 p. m. The society was called to order by the President, J. H. Harrison. The Secretary, A. L. Kinchloe, being absent, W. L. Tyler was appointed by the president to act as secretary pro-tem. The roll call found the following members present: J. H. Harrison, J. W. Barnhill, H. K. Osborne, W. S. Gilmoure, R. W. Connor, J. R. McGary, R. E. Griffin, Ed Barr, Geo. Barr, J. M. Coffman, P. D. Gillim, O. W. Rash, C. M. Rice, S. P. Oldham, W. L. Tyler, D. M. Griffith, I. J. Hoover, J. D. Stewart, O. W. Edge. J. R. McGary read a very up-to-date paper on "Anterior Poliomyelitis", which was freely discussed by the society. S. P. Oldham gave a very interesting review of the Journal of Obstetrics and Gynecology for April, 1928, stressing the importance of recognizing nephritic complications in pregnancy, ectopic gestation and "hour glass contractions of uterus." Same was freely discussed by the members. H. K. Osborne read a short paper on Morphinism, describing the method by which the habit was formed as well as the treatment. Samuel E. Hainline, our new, All-Time Health Officer, was unanimously elected to become a member of the society.

At our next regular meeting, June 12th, 1928, we will have dinner at Hotel Owensboro at 7 p. m. Papers will be read by Oscar Allen, McHenry, and Oscar McKinney, Beaver Dam.

A. L. KINCHLOE, Secretary.

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MEDICAL JOURNAL

Being the Journal of the Kentucky State Medical Association
Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets.
Subscription Price, $5.00
Single Copy, 50 cents
Entered as second-class matter, Oct. 22, 1906, at the Post office at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., AUGUST, 1928 No. 8

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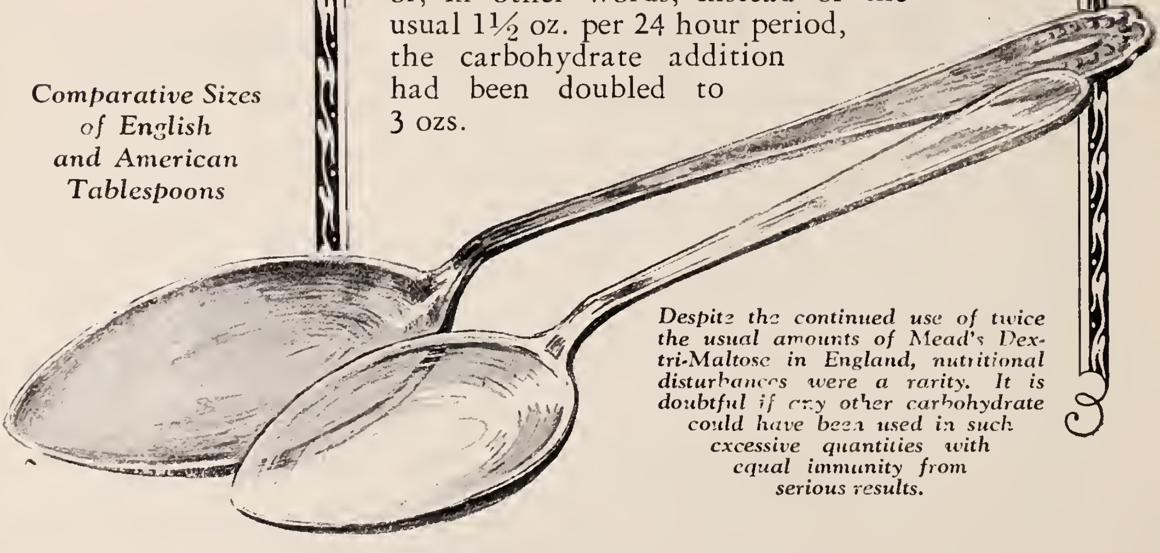

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EDITORIAL

PROGRAM FOR RICHMOND MEETING

The Program Committee is now working on the program for the Richmond meeting. It is planned that two or three symposia be presented, as well as having a well rounded program of individual topics on distinctly medical subjects. In order to secure the subjects that will be of greatest value to the general practitioner, the specialties must also be represented.

In addition to the subject material to be secured, it is much to be desired that the different portions of the state be represented.

The Program Committee hope to hear from each Councilor with suggestions as to essayists, and as to topics to be discussed. There is no doubt but that many County Societies have had papers that would well be worth while for the State Meeting. It is requested that Secretaries of County Societies call the attention of the Program Committee to any man whose work has been outstanding in his community. Write Dr. W. Barnett Owen, Heyburn Bldg., Louisville, with any suggestion you may have.

THE RICHMOND MEETING

The Madison County Medical Society is making a great effort to make the Richmond meeting one of the very best that has ever been held in the history of the Association. Richmond is so splendidly located and so easily accessible by automobile and train that this very fact presages a very large attendance.

The program committee composed of Drs. Barnett Owen, John H. Blackburn and A. T. McCormack, have been untiring in their efforts to give to the profession a real postgraduate course and arrange their program for the general practitioner. Specialists will have their inning at the surgical section.

The commercial exhibits will be a post-graduate course in itself, as all the latest equipment in X-Ray, Ultra Violet Ray and other Physical Therapy apparatus will be shown as well as the exhibits of dietary, pharmaceuticals and biological products.

Rooms in Burnham Hall, the recently finished dormitory, wonderfully equipped with electric lights, baths and modern cafeteria will be given to the physicians without expense, and meals will be served in the building at cost. The commercial exhibits will be located in this building.

Richmond is at the foothills of the mountains, and the date of the meeting has been arranged early in September so that there will be a splendid opportunity for physicians to spend the week-end at Crab Orchard Springs Hotel and Boone Tavern, Berea, after the close of the meeting. The social side of the program wil be given with true Southern hospitality.

Those members who have not paid their dues to the Association should send in their checks immediately, so as to avail themselves of this opportunity for this intellectual treat.

THE EYE, EAR, NOSE AND THROAT SECTION OF THE KENTUCKY STATE MEDICAL ASSOCIATION

This issue of the Journal contains the official minutes, as well as all the papers read before this section at its annual meeting in Louisville May 25, 1928, and should be read by every general practitioner in the state, for many of the problems that confront these specialists are near to the heart of the family doctor.

His judgment and his ability to decide the need for consultation with these specialists are often far reaching in the effects upon the future well-being of his patients. The general practitioner must know that obstinate diarrhea in children may mean mastoiditis, and that the child may go through life regarded as dull and stupid, all due to faulty vision or adenoids.

Through the able guidance of the President, Dr. J. A. Stucky, and his Councilors, this section now counts among its members every qualified physician in the state, who specializes in diseases of the eye, ear, nose and throat.

The principle events of the meeting were the annual banquet and the address of the guest of honor, Dr. A. M. Alden of St. Louis, Mo., on "Mastoiditis in Infants."

THE NEW MAYO CLINIC VOLUME

The New Mayo Clinic Volume of June, 1928 has just been received, and this is a book that should be in every doctor's library, regardless of whether he is a general practitioner or a surgeon. This book can be purchased from W. B. Saunders Company, Philadelphia, Pa., for thirteen dollars, ($13.00).

There are 49 articles on the alimentary tract—49 sources of ideas on a region that causes much complaint; 20 on the urogenital organs; 6 on the skin and syphilis; 14 on the ductless glands; 32 on the blood and circulatory organs; 14 on the head, trunk and extremities; 8 on the chest; 11 on the brain, spinal cord and nerves; and 25 miscellaneous articles—a wealth of original thought.

TYPHOID VACCINE

For a number of years the State Board of Heath has been maintaining a department for the manufacture of typhoid vaccine. At the beginning of this work, the United States Public Health Service assigned to the Board one of their very best technicians, Past Surgeon Dr. F. R. Haselton, who trained the personnel to take care of this department.

Since that time there has been manufactured over 32,888 bottles of typhoid vaccine and each bottle will inoculate twenty. Enough typhoid vaccine has been distributed to vaccinate 657,760 people.

In addition to this, during the time of the devastating floods of the Mississippi last year, 1000 bottles were sent to the American Red Cross. This vaccine was distributed by aeroplane to various distressed sections. When the flood devastated the eastern part of the State of Kentucky, this department was ready and prepared to send 7,000 bottles of vaccine with the result that there was less typhoid fever in the flood area than any section of the state.

The laboratories have a capacity of manufacturing about 5,000 bottles a year due to the limited appropriation that is given to this department, however, when this unprecedented demand was made upon the laboratories their director, Dr. Lillian South-Tye, was equal to the occasion.

Extra equipment was donated to this department by the School for Laboratory Technicians, and the directors of this School, Mr. E. H. Sandlin and Mrs. Anna Dickson, who have had wide experience in this line of work, offered their assistance and we were thus able to increase the supply.

With this added equipment we now have a capacity to manufacture 15,000 bottles a year, so there is ample supply for any physician who wishes to use this vaccine.

The unprecedented rains during the month of June again threaten us with a severe flood and the widespread epidemic of typhoid fever. In view of the fact that this is vacation time and people are traveling over wide sections of the country and are in constant danger of contracting typhoid fever, we urge every physician to secure a supply of typhoid vaccine and to inoculate all their patients.

SOCIAL HYGIENE CONFERENCE

The Fall Regional Social Hygiene Conference will be held this year in Louisville, Kentucky, under the sponsorship of the Social Hygiene Association of Kentucky and thirty-five cooperating national, state and local organizations, including the State Boards of Health and Education. The American Social Hygiene Association, as the representative national voluntary agency in this field, will participate extensively in developing the plans and program. The dates for the Conference are October 11-13 and headquarters will be the Brown Hotel. Authorities in the field of sex education, protective measures, venereal disease control, law enforcement, and other aspects of social hygiene will be on the program. It is expected that the speakers will include Surgeon General Hugh Cumming, Professor Thomas W. Galloway, Reverend Anna Garlin Spencer, Dr. Hugh Young, Dr. Edward L. Keyes, Dr. Valeria H. Parker, Dr. William F. Snow, and other leaders in the nation's social hygiene activities.

Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, invites the health workers of the state to take part in this Conference, and Mrs. Elsie Zinsmeister, president of the Social Hygiene Association of Kentucky, has been assured of the cooperation of both voluntary and official groups throughout the southwest.

Specialists will be given opportunities to discuss their particular problems at round table gatherings while the general meetings will furnish addresses and papers of wide interest and value. Many members of social hygiene societies and workers in related fields throughout the United States already are planning their October schedules with this Conference in mind. As for the social features, the Committee is making ample provision for them.

A NOTE OF CAUTION

I find that certain manufacturers of so-called insulin syringes both here in the U. S. and abroad are placing on the market syringes peculiarly graduated and, therefore, potentially dangerous. Having had personal experience with the results consequential to their use both in hospitals and with patients own syringes, I feel obliged to call the attention of the profession to the situation in order to hereby avoid further danger to diabetics.

The syringes referred to are of a 2 cc. capacity and are graduated on two sides as having a capacity of 20 and 40 units of Insulin respectively. Since Insulin is measured by unit strength per 1 cc. content in accordance with the standard established by the Insulin Committee of the University of Toronto and is uniformly so manufactured by every biological concern licensed to make it, if one uses a 2 cc. syringe and regards the unit numbers marked on such a syringe, the patient gets twice the number of units intended to be given. For example, if 40 units are ordered at each dose and the patient is supplied with a U. 40 Insulin, it is uniformly the custom of physicians in instructing either the nurse or the patient to disregard the side of the syringe scaled U. 20 and measure the Insulin on the side scaled U. 40. When using a syringe with a capacity of 1 cc. and scaled on one side U. 40, the piston is pulled out until the Insulin is drawn to the figure 40, which means the patient will get 40 units which was the amount desired in our supposed case. But if after using this syringe for a few days it is broken and the hospital or the patient procures a new one from the local druggist which happens to be one of the 2 cc. syringes, the next dose of Insulin obtained by drawing the fluid up to the mark 40 contains 80 units instead of 40 as intended. The result of such doubling of dosage in two or three days is a hypoglycemia and the doctor is puzzled as to the cause. He is fortunate if nothing more serious occurs than to be merely puzzled as will certainly happen if the patient is on a weighed diet, his sugar tolerance known and the dosage of Insulin accurately determined to burn the difference.

Inasmuch as Insulin is made with its unit strength labelled per cc. it follows that Insulin syringes should be scaled in units per cc. capacity. This has been true of Insulin syringes until recently when an American concern put on the market a 2 cc. syringe graduated exactly as if it had a capacity of 1 cc. More recently a European concern has shipped syringes to this country graduated the same way. These syringes were sold by the retailers without their even noticing that they had a capacity of 2 cc. instead of 1 cc. as heretofore. They were used in hospitals with the same oversight and quite naturally patients procuring replacements would not be expected to notice the difference. Many of the druggists of Louisville have had their attention called to the faulty graduation and have returned the syringes on hand but such as have not had their attention called to it and especially those out in the State should be warned by the physicians so that the syringes may be returned to the manufacturers.

One would think the manufacturers would willingly cooperate in the endeavor to forestall further possible harm but one firm exhibited these syringes in their booth at the last meeting of the American Medical Association after I had explained the danger to one of their representatives here in Louisville and had been assured by him that the syringes would be called in. I would urge that every retail dealer in the State be asked to return all such syringes to the manufacturer with the request that they be replaced with syringes correctly scaled.

V. E. Simpson.

OFFICIAL ANNOUNCEMENTS

OFFICIAL MINUTES OF THE SEVENTH ANNUAL SESSION OF THE EYE, EAR, NOSE AND THROAT SECTION OF THE KENTUCKY STATE MEDICAL ASSOCIATION, AT LOUISVILLE, KENTUCKY, MAY 25TH, 1928.

The Seventh Annual Session of the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, was held in the Leather Room, Seelbach Hotel, Louisville, Friday, May 25th, 1928, with a registration of about fifty members.

Morning Session, May 25th, 1928.

Section called to order by Dr. J. A. Stucky, President, at 10:15 a. m.

The Official Minutes of the 1927 session were read by the Secretary and approved.

The following new members were admitted by unanimous vote:

Dr. G. W. White, Henderson,
Dr. H. G. Abell, Paducah,
Dr. R. N. Armstrong, Lexington.

Application for membership of Dr. G. C. Yates, Lexington, received.

Report of the Treasurer, Dr. S. B. Marks, Lexington, was read and accepted.

Upon motion of Dr. R. W. Bledsoe, Covington, visiting physicians were accorded the privilege of the floor during the session.

Motion was made by Dr. D. M. Griffith, Owensboro, that the Secretary be requested to send a telegram to Mr. John D. Rockefeller, Jr., and Rockefeller Institute in regard to the death of Dr. Noguchi. Motion carried and Secretary instructed accordingly.

The first paper was read by Dr. S. B. Marks, Lexington, on "Otitic Sepsis, with Case Reports." Discussed by Drs. Griffith, Alden (St. Louis, Mo.), Cowley, Offutt, Bledsoe, and in closing by the essayist.

Dr. J. D. Williams, Ashland, presented a paper entitled "Some Thoughts Concerning the Diagnostics Incident to Refraction," which was discussed by Drs. Pfingst, Griffith, Scott, Dabney, and in closing by Dr. Williams.

Dr. George A. Vaughan, Louisville, exhibited a man upon whom laryngectomy had been performed. He was wearing an "artificial larynx" and was able to talk distinctly.

Dr. M. C. Baker, Louisville, read a paper under the title "Pituitary Tumor with Eye Symptoms, history of case, operation and early beneficial results, with exhibition of charts and roentgen films. Discussed by Drs. Spurling, Pfingst, Dabney, and in closing by Dr. Baker.

Adjournment at 12:30 p. m. for lunch in the Seelbach Red Room.

Afternoon Session, May 25th, 1928.

Section called to order by Dr. J. A. Stucky, President, at 2:10 p. m.

The following officers were elected for the ensuing year:

President, Dr. J. D. Williams, Ashland.

Vice President, Dr. J. H. Simpson, Louisville.

Treasurer, Dr. S. B. Marks, Lexington (reelected).

Secretary, Dr. Walter Dean, Louisville, (reelected).

Dr. M. L. Gunn, Harlan, presented a paper on "The Relation of Eye Diseases to Diseases of the Nasal Accessory Sinuses," with a study of four cases. Dr. M. J. Stern, Paris, followed with a paper entitled "Interpretation of Changes in the Field of Vision." These two essays were discussed together by Drs. Dabney, Heitger, Marks, Williams, Dulaney, Watkins, Drake, Dean, and the discussion was then closed by Dr. Gunn and Dr. Stern.

Dr. R. H. Cowley, Berea, read the next paper, entitled, "Important Considerations in Diagnosis and Treatment of Maxillary Sinusitis," which was discussed by Drs. Abell, Drake, Baker, Stern, Dulaney, Scott, Bledsoe, Heitger, Alden, Stucky, and in closing by the essayist.

Dr. J. H. Simpson Louisville, presented a brief paper on "Leucopenia Extremis in Acute Streptococcic Infection of the Tonsils, with report of one case." Discussed by Drs. Offutt, Heitger, Marks, Wells, Drake, and closed by Dr. Simpson.

The Section adjourned at five-thirty to reconvene at 7:00 p. m. in the Red Room for the annual dinner.

Evening Session, May 25th, 1928.

The annual dinner was served in the Red Rom at 7:00 p. m. with Dr. A. M. Alden, of St. Louis, Mo., as the guest of honor.

At 8:30 p. m. the Section was called to order by Dr. Stucky who then delivered the President's Address on "The Present and Future of Ophthalmology and Otolaryngology."

Dr. A. M. Alden, of St. Louis, who was introduced by Dr. Stucky, presented an elaborate paper on "Mastoiditis in Infants," illustrated by numerous lantern slides.

Before the Section adjourned Dr. Stucky said he wished to thank the members for their assistance and cooperation, and especially the Secretary, for his splendid work.

There being no further business the Section then adjourned to meet in 1929, the time and place to be decided by the Committee.

Walter Dean, Secretary.

ORIGINAL ARTICLES

THE PRESENT AND FUTURE OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.*

By J. A. Stucky, M. D., Lexington.

I am sure all will agree that the scientific papers read, which brought forth such vigorous discussions, the large and interested audience at both morning and afternoon sessions, the lively interest at the luncheon round table presentation of Favorite Therapeutic Stunts, participated in by everyone present and now the climax after this bountiful dinner and scholarly address by our guest, Doctor Arthur M. Alden on "Mastoid Infections in Infants," which has both interested and instructed us, make this meeting one which will be long remembered as one of the best thus far in the history of our Society. This is as it should be—each meeting should be an improvement in a scientific way, fraternal interest and increased attendance. Thus will we find ourselves closer together in our professional relationships and our determination to develop and disseminate our knowledge of the science and art of Ophthalmology and Oto-Laryngology. With this desire, hope and determination, I do not feel like saying farewell and making a graceful exit, but when I surrender this office to our president-elect at our next meeting, it will be a joyful privilege to retire to the ranks and work with you for the advancement and development of this branch of the medical profession to which we have dedicated our special efforts.

I desire to leave with you some suggestions that I feel are of such vital importance we should give them serious thought. In March, 1878, I graduated in Medicine, received my diploma and began the practice of medicine and surgery. Ten years later I began devoting myself to the study and treatment of the eye, ear, nose and throat, and five years later, or thirty-five years ago, I limited my work to this special field. It is therefore interesting to recall some of the things that have happened in this time.

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*President's Address delivered before the Eye, Ear, Nose and Throat Section of the Kestucky State Medical Association.

I shall not detain you with any detail, but mention a few things, so we may compare the "then" with the "now", thus enabling us to better appreciate a consideration of the topic—"The Present and Future of Ophthalmology and Oto-Laryngology." I do not believe it will be doubted that the most startling advances made in the entire realm of medicine in the past three decades have been made in Ophthalmology and Oto-Laryngology. These have been brought out most interestingly and accurately by Frederick A. Keihle of Portland, Oregon, in his article on "The Newer Rhinology" and it is well worth the reading. One half century ago the anatomy and locality of the eye, ear, nose and throat was considered of minor importance and comparative insignificance. The change in the present state of mind is not due to refinement in descriptive anatomy, for we find excellent accounts in Vesalius (born in 1515), also satisfactory accounts of many pathological conditions. The ideas of the physiology of these regions at that time would cause a smile today. Hippocrates used a sponge for the removal of nasal polypi, and Fallopius used forceps for removal of same.

Jonathan Wright's[2] "History of Laryngology and Rhinology", (page 174), shows that surgery of the maxillary antrum was anticipated long ago, yet I graduated without being taught anything of especial interest, surgically, beyond the snaring of polyps and sawing off of septal spurs. In the early days the spray tube and bottle held potent sway. We may pause to ask to what do we attribute the increased importance, increased respect and changed attitude of medical thought today? There are two things.

I. "The acceptance and elaboration of the theories of focal infection. The nasal accessory sinuses are not only delicate and intricate but are ideally adapted for harboring pus and bacterial infection,—yet for two hundred years we have known that 'the sinuses served as reservoirs of peccant humors'."[3] But today from arthritis to diseased ductless glands, the modern internist is often helpless in the face of many conditions where no evidence of pus foci are found above the collarbone. Americans are more extreme than their British confreres about focal infection, and I sometimes wonder if the pendulum has not swung too far and needless surgery done with resulting impaired function, in our search for foci of infection in the intranasal region, and yet perhaps no part of the body will stand more punishment and react apparently normally to more interference.

2. "The most startling and important event in the evolution of intra-nasal, laryngeal and otological surgery, which requires the utmost delicacy and refinement of technique and the highest degree of judgment and operative skill, to not only remove the foci of infection or obstruction to function, but to (a) replace all structures in as nearly normal relationship as possible; (b) the re-establishment of ventilation; (c) drainage of infected and suppurating areas. The upper respiratory tract is a series of chambers, possessing a continuous mucosa (like wall paper covering successive rooms). Hyperemia. oedema, inflammation, seldom remain local phenomenon at the point of origin. The accusing finger is pointed at the maxillary antrum as the greatest area of the nose."

Hirsch of Hajek's Clinic, states "90% of infected ethmoids will take care of themselves if the antrum is relieved." To my mind we have apparently reached the zenith in our technique and refinement in diagnostic and operative skill, and there is more rapid growth from without than within our specialties, but we must keep pace with the advancement made in other departments of medicine.

Increased knowledge brings increased responsibility. The higher training of our specialists and the national boards for examination to obtain a certificate of qualification as such are a great step forward in organizing, unifying and establishing the specialties. It is a credit to us that so many are flocking so loyally to the national boards by offering themselves for examination, and it is important that the medical profession and public be informed of the demands that we make upon ourselves in the interest of improving our work.

The growing field of medicine will soon make it necessary for the states to demand at least two minimum requirements: (1) basic training in all medical subjects; (2) special requirements for those representing themselves as specialists. A general knowledge of diseases of the entire body must be recognized as a basis for the practice of any specialty because one organ cannot be successfully treated to the exclusion of the rest of the body. Specialties and specialists are coming into their own, and it is our duty to make them and ourselves, as individual members, what they should be.

"In our profession as in others, it is necessary that we learn some subjects fairly thoroughly, and others that we should completely master. The basic subjects create the cleavage in the medical profession, the common ground on which we must all stand, etc. Among the most important of the recent additions have been physiological and biological chemistry. These in turn have become incorporated into the science of nutrition, and it is developments in this science that we must diligently follow, for regardless of what branch of medicine we practice, these two conditions, growth and development, must always remain subjects of our concern."[5]

Recently we have learned much about circumstances and conditions under which infection takes place and we may so arrange diet as to determine the kind of infection to which persons are subject. "This has brought us to the parting of the ways where we must determine whether we shall be content to treat defects and end-results by mechanical methods or whether we shall prevent and treat them in accordance with the newer knowledge and make of ourselves really scientific practitioners. Dietary deficiency which is sufficient to interfere with normal growth and development reacts unfavorably, often destructively upon the organs of special sense."[6] A recent report of the Committee of the Carnegie Foundation upon the progress of Dentistry[7] should make every ophthalmologist and oto-laryngologist stop and ask himself the question, to what extent is he guilty in failing to teach prevention in the diseases of our specialty.

This adjunct and ally of general medicine, like our own specialty, has made many startling advances, but if a similar committee reports on different specialties in regular medicine, will ophthalmology and otolaryngology be "found wanting"? We spend millions of dollars in instrumental and other equipment for treatment and the holding of large clinics; we spend hours, days and weeks removing conditions and effects, but what are we doing in educational and preventive lines? Unfortunately, with too many of our profession, the establishment of the cause of any disease is of less practical moment than the dicovery of some adequate treatment, though of course the finding of the cause usually proceeds the working out of a reliable method of treatment.

We have not discharged our whole duty to our patient or the community when we have only done our best to ameliorate conditions for which we are consulted, but we must teach them how they can be prevented, as health counsellors and teachers of science and art of living. It is expected of us to take up the doctor's burden and live properly ourselves that we may teach others, and it is well for us to prepare for this next step in evolution, for the step will be taken, whether we are ready for it or not, and if we have been one of the foolish virgins, the procession will move on and we will be found weighed in the balance and wanting. We should take the attitude of tempering enthusiasm with judgment and of waiting for sound and valid demonstration before we become unduly excited over new discoveries—such as bacteriophage and phagotherapy. These seem now to have reached a stage where we have reason to feel that we are on the eve of revolutionary announcement in the field of biology and medicine.

The science of nutrition has made greater progress in the past five years than any of the other sciences. Discoveries made in this science have solved many of those problems that are of vital concern to health and well being. It has placed health within the reach of nearly every individual and if the lessons taught by this science were followed, old age and evidences of senility would be postponed long beyond the period when we usually expect them to appear now. Nutrition, (diet), exercises an important influence over the special senses by controlling cell activity.

It has been demonstrated in the laboratory[8] that many well known and frequently treated diseases of the eye, ear, nose and throat can be caused as well as cured by special feeding, and able clinicians[9] are demonstrating the same facts in children. If we, then, as ophthalmologists and otolaryngologists do not cooperate with the advance guard in this preventive work, by urging biological living, we will be justly accused as is set forth in the report of the Committee of the Carnegie Foundation on Dentistry, of doing good work in repair and cure of the diseases of our specialty, but not even holding our own in prevention.

Some are visualizing the day when all human beings will be immunized, in childhood, against every known type of micro-organism that is likely to attack them, so that our descendants will live in health, until they die of old age, or as a result of accidents. I am not one of these. For centuries the race has been getting farther from rational living, and the returning will be slow but sure.

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*Abstract of President's Address, Dr. J. A. Stucky.

1. "The Newer Rhinology" North West Medicine, Dr. F. A. Keihle.

2. History of Laryngology and Rhinology, Jonathan Wright.

3. "The Newer Rhinology", North West Medicine, Dr. F. A. Keihle.

4. "The Newer Rhinology, North West Medicine, Dr. F. A. Keihle.

5. Effects of Food Elements on the Special Senses, Southern Section A. L. R. & O. Society, 1928, Wm. Weston.

6. Effects of Food Elements on the Special Senses, Southern Section A. L. R. & O. Society, 1928, Wm. Weston.

7. Carnegie Foundation for Advancement of Teaching Dental Education, 1926.

8. Faulty Nutrition A Causative Factor in Infections of Upper Respiratory Tract, Amy L. Daniels, Iowa University, 1926. (American Academy Ophth. & Otolaryngology, 1927.)

9. Clinical Report, L. W. Dean, Iowa University, Transactions A. L. R. & O., 1926.

10. Nutritional Camp, Wm. Weston., Medical Director, Columbia, S. C.

OTITIC SEPSIS: WITH CASE REPORTS*

By Samuel B. Marks, M. D., F. A. C. S.,
Lexington.

Since I find the report of these three cases will consume the time allotted, I shall be compelled to let the report constitute the paper, without remarks concerning the vagaries of mastoid and middle ear infections and the complications incident thereto.

Case I. Mrs. W., aged 65, white, widow, active as a bookkeeper until development of present illness, was seen by me on February 12th, with the following history: One month ago she was suddenly seized with pain in the left ear, which, becoming much worse in a few hours, she called Dr. R. L. Carrick, who opened the drum membrane, with a discharge of a moderate amount of thin pus. She was seen the following day and the ear was doing satisfactorily, after which time she failed to return to Dr. Carrick, but called in an osteopath who had treated her from time to time for various ailments, who also undertook the care of the ear with apparent satisfactory results, there being no further discharge after two weeks time. She then gained strength and in a week spoke of returning to work, but five days ago upon arising she had a severe attack of vertigo and vomiting, followed by a chill, and felt very ill. She remained in bed and felt better each day with no return of these symptoms except slight dizziness when going to the bath room.

The morning of the day I first saw her, she arose and had a repetition of the above symptoms, but they were worse and she felt very ill and called Dr. J. W. Scott, at whose request I saw her. She was free from discomfort except vertigo upon raising her head and a slight pain in left ear with considerable tenderness about the meatus. Her temperature was 103.6°F., pulse 120 and respirations 26.

Upon examination the nose and throat were negative, pupils active and equal with no nystagmus. The ear showed a resolving furuncle in the canal wall and some edema at the junction of cartilaginous and bony canal walls at their superior and posterior portions. The drum membrane was partially retracted, dull and slightly reddened, with no apparent perforation . The membrane was freely incised and a small amount of thin, bloody fluid obtained.

The patient was then removed to the Good Samaritan Hospital where a general examination was found negative. Roentgenogram of chest negative. Urine and blood culture taken at this time were found negative. Leukocyte count 15,000; polymorphonuclears 80 per cent. The patient spent a comfortable night, her ear being irrigated every two hours with 2 per cent mercurochrome.

The next morning her temperature was 101°F., and she was alert and had no pain. At this time roentgen-ray examination of the left mastoid showed an apparent loss of cell structure posteriorly and at the tip, and when her temperature again rose in the afternoon it was decided best to do an immediate operation upon the left mastoid, which was done with the following findings: A large antrum was found filled with thin muco-pus with edema and thickening of the lining membrane; the rest of the bone was very soft with many small cells containing an edematous thickened membrane; the zygomatic and tip cells were of normal size with very little change in them, but the bone was soft as were the post sinus cells; there were three fairly large cells anterior to the knee of the sinus involved in a small peri-sinus abscess, with a pyogenic membrane covering the sinus wall at this site.

The sinus was uncovered and found pale, but pulsating freely both to sight and touch. Upon aspiration no blood was obtained, and upon opening it was found thrombosed with a thickened wall and a dense organized clot. Upon extending the exposure well backward into the occipital bone and to the jugular bulb, the clot was found to reach half way to the torcular before free bleeding was obtained, while at the bulb there was a fairly fresh clot in which was thick, yellow pus.

The wound was then dressed and the internal jugular vein exposed and doubly ligated above the facial nerve, but was not cut as the wall was not diseased and it was fairly well filled with blood.

The patient aroused from the anesthetic in twenty minutes and said she felt fairly well, with a pulse of 120 and no shock. Cultures taken from the mastoid and sinus pus for some reason, probably technical, did not show bacterial growth.

She had a good night and felt well the next morning but was drowsy and quite dull, which condition increased during the day with some dyspnea and difficulty in swallowing. The temperature ranged around 102 and a fraction with the pulse from 120 to 140. During the afternoon she was given glucose and soda per rectum and two hypodermoclyses, but the next morning all symptoms were worse with a temperature of 105°F., pulse 140, and respirations more difficult and 30 per minute. She grew increasingly worse and died at 1:45 that afternoon.

Dr. Scott attributed her death to cardiac failure due to the overwhelming infection and probable involvement of the endocardium. No autopsy was obtained.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

Case II. The second case was that of a well-nourished boy eight years old with no previous history of ear trouble. I had removed his adenoids and tonsils two years previously. He was seen at the office by Dr. Offutt in my absence on January 25th with an ear ache upon the left side. The drum membrane was red and dull, but not bulging. Upon incision a small amount of thin fluid was obtained.

I saw the patient the next day with no pain, a free opening in the lower posterior quadrant and only a little moisture. The next night I saw him with temperature of 103°F., and severe pain in the same ear, and a free discharge of thin muco-pus. The membrane was edematous above and very red, and was again incised under chloroform anesthesia. The following day he was comfortable with little fever and a free discharge, but that night the pain and temperature returned and the membrane was still more edematous with profuse discharge, with pulsation in the middle ear, so again he was chloroformed and the incision investigated and found freely open. Dr. John McGinnis, the family doctor, also saw him and reported negative physical findings, as was his nose and throat. The urine was normal with no pus nor bacteria. There was no tenderness nor other sign of mastoid involvement.

The next morning he was bright and comfortable. That evening his temperature was again high, but he had no pain in the ear nor signs of mastoid involvement. He was removed to the Good Samaritan Hospital where the urine was again negative, but his leukocytes were 18,800 with 94 per cent polymorphonuclear cells, so the left mastoid was freely exenterated and the sinus plate exposed but found healthy. The antrum and tip cells, covered by an unusually thick layer of bone, contained dark muco-pus and edematous discolored membrane; the rest of the bone was softer than normal with many small cells containing a pinkish membrane. The roof of the additus was likewise soft, but no pus was found in the zygoma.

For forty-eight hours the temperature ranged between 103.6 ad 100.6°F., with a pulse of 108 to 120, and respirations 24, but other than a normal irritability and tenderness of upper part of the sterno-mastoid muscle he was in a normal state. The urine was negative, as was his chest. The following day his condition was normal with highest temperature 100.8°F.

The next day his temperature rose to 102.2° F., and a few pus cells and many bacteria were found in his urine. Leukocytes were 10,000, with a polymorphonuclear percentage of 70. A culture made from the urine showed colon bacilli. For the following four days his temperature ranged from 105.2°F., to 98°F., at which time there was a marked bacterial shower in the urine, this being on the eighth day. I then found he was inadvertently getting both Kalak water and urotropin, and upon stopping the Kalak his temperature receded, ranging between 100.4°F., and 98°F., with a slowly clearing urine. During this period the leukocytes were 18,000 with polymorphonuclear count of 74 per cent; Widal negative, chest negative, blood culture from arm vein negative, and during the whole time the boy felt fine and was propped up in bed drawing pictures and amusing himself generally except when his temperature was at its height. His mastoid wound was progressing nicely and rapidly healing.

The thirteenth day his temperature again rose to 104.2°F., and in four hours was 99.6°F., and again in four hours to 103.6°F., with a recession to 99.6° in four hours, with only a few cells in urine and no bacteria. At this time the metatarso-phalangeal joint of the right great toe was red and swollen and tender, but was much better the next day, whereas his temperature again rose to 103°F., in eight hours. I then took a blood culture from the right internal jugular vein after the technique of Dr. Reuben Ottenberg of the Mount Sanai Hospital of New York, and found in thirty-six hours an enormous growth of hemolytic streptococci on a glucose-agar plate. I failed to get blood from the left internal jugular.

The patient was then prepared for an operation upon the lateral sinus of the operated side which proceeded as follows: The left internal jugular vein was rapidly exposed for its upper one-half and found to be nearly empty of blood with a thick wall and very much narrowed lumen looking more like an artery than a vein. It was doubly ligated and divided at site of facial vein, which was also ligated; the wound was closed by closing the cervical fascia and skin with catgut leaving a rubber tissue drain from the site of the ligation to protrude at the lower wound angle.

The mastoid wound was then opened to its full width and extended posteriorly and the sinus ridge exposed posteriorly and the plate removed from the knee of sinus to the jugular bulb. The sinus was not visibly pulsating, but was to touch; its wall was thickened and of a pale yellow color, and upon placing plugs above and below and opening the sinus it was found filled with thin yellow pus, being blocked both above and below by a dense well organized clot which extended posteriorly fully half way to the trocular, the wall being covered with pyogenic membrane at the posterior end of clot where the clot was fresh and contained thick yellow pus. After free bleeding was allowed, the sinus was plugged with iodoform gauze and the lower end was investigated finding only the old clot which was removed but no free bleeding obtained. The sinus wall was then excised after putting in the lower iodoform plug. The wound was packed with iodoform gauze, only the posterior extension of the wound being sutured over the gauze.

The next two days the patient was irritable and cross, with a temperature of 98.8° to 101.6°F., with a clear urine. From this time the convalescence was uneventful, the last packing being removed on the twelfth day and the patient going home on the sixteenth day with complete healing in two weeks.

Case III. The third case of this group was a girl, aged six years whom I saw with Dr. Tom Marks, with the following history: Two weeks before she had had hemorrhagic measles, but had progressed normally until three days ago when her temperature suddenly rose to 104°F., with nothing to account for it. Chest, urine, nose, throat and ears negative. Two days later she complained of ears and became quite deaf, and drum membranes were both found thickened, red and bulging. I opened both ears freely upon the same afternoon under chloroform anesthesia, and the following day she was much better in all respects with a marked improvement in hearing and a profuse thin discharge from each ear.

The next day her temperature again rose, the ears still profusely discharging, but no pulsation and no signs of mastoid involvement. Dr. Tom Marks found apparently distinct bronchial breathing over the middle lobe of the right lung, and we thought this was the trouble. There also had developed soreness in the right shoulder, but no redness nor swelling, of which nothing developed, and swelling and tenderness at first rib and sternal joint, which later suppurated. The next day she was so ill that she was removed to the Good Samaritan Hospital for further study. The mastoids were examined with the roentgen-ray but showed very slight if any changes. The chest showed light feathering of the middle lobe with no positive physical signs. The urine was negative. Leukocytes 21,550 with 85 per cent polymorphonuclears. Temperature 104.2°F., pulse 132 and respirations 40.

Late in the day she was prepared for operation and both mastoids were opened, the left first as the discharge in this ear was pulsating but not in the right, with the following findings: The antrum and a few neighboring cells were found filled with the same character of pus as in the ear, with a thickened granulomatous membrane, but the sinus plate was intact with solid bone and was not opened. The right mastoid was opened, but less extensively so, with virtually the same findings.

After dressing the wounds blood was taken from the right internal jugular, again by the Ottenberg technique, but I was unable to enter the left vein. This culture was strongly positive for hemolytic streptococci in twenty-four hours.

A spinal puncture made under the anesthetic before the operation showed a clear fluid under moderate pressure, with a normal count and no growth.

The patient was desperately ill for the next five days with a temperature of 103° to 106° F., pulse 130 to 150, and respirations 30 to 40, but took orange juice and water copiously, and was given digifortis 15 m. every four hours.

On the fifth day I opened under novocaine an abscess external to the right sterno-mastoid muscle just above the clavicle coming from the first rib and sternal joint, and had to reopen over the joint two days later, both abscesses being deeply seated with the sternum uncovered posteriorly between the first and second ribs. Following this she improved enough, with temperature 101° to 104°F., pulse 135 to 145 and respirations 40 to 48, to submit to a chest examination and roentgen-ray on the seventh day, which showed right lower and middle lobes densely consolidated with many coarse moist pleuritic sounds. Dr. Tom Marks aspirated this side but obtained no pus. Here she began to very slowly show slight continuous improvement, but as her pulse became quite irregular the digitalis was stopped for a few days. The tenth and eleventh nights she had pseudo-crises and almost died, her temperature receding to 101° and 99.6°F., and extreme prostration occurring respectively.

The fifteenth day she was again x-rayed and a small empyema was found on the right side from which 130 cc. of a dark thin positive streptococcic fluid was withdrawn, and again upon the seventeenth day 160 cc. were removed, the fluid now being purulent. Her condition showed marked improvement after each aspiration, and upon the nineteenth day Dr. C. A. Vance drained the empyema between the seventh and eighth ribs under novocaine and put in a valve drainage.

After two days of considerable disturbance she began to really get well, the mastoid wounds healing on the thirty-first day and the sternal abscess a few days later. Following this nothing else happened except the incision and drainage of abscesses of the left forearm and right buttock on the forty-ninth day by Dr. Vance under chloroform, which had been in evidence for twelve days. She is now up in a wheel chair daily, beginning to walk a few steps, though chest, arm and buttock are still draining.

I would like to describe briefly Ottenberg's technique: "Patient is placed upon table at 49° Trendelenberg and a No. 19 sharp needle 1½ inches long is inserted at about the line of the hyoid bone into the anterior one-third of the sterno-mastoid muscle and pushed downward and inward toward the manubrium. The vein is superficial here and only covered by the sterno-mastoid muscle.

The operator stands at the head of the table and has patient strain as a child cries thus filling the vein.

Ottenberg has further found and reported in his later article that where thrombosis is complete the growth from the unaffected side is much greater than from the other side, but where the occlusion is not complete as in phlebitis alone, the two sides are about the same.

He also found that the cultures from the jugular showed very much more prolific growth than those from the arm vein in phlebitis and thrombophlebitis of the sinus, where in a general invasion the cultures from the different veins were very similar in number. He advises that glucose-ascitic-agar plates and broth cultures be made, and the blood from arm vein be also cultured as a check."

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DISCUSSION.

D. M. Griffith, Ownsboro: I have enjoyed Dr. Marks' very interesting paper. We have all had more mastoiditis to deal with the past winter, I presume, than we have had for many years. I know that has been true with me. We have had a terrific epidemic of influenza, and there has been sinus trouble in almost every case. I have performed more mastoidectomies this winter than for many years.

I will briefly refer to one case brought to me from Hancock County. The patient was a young girl who lived in the country, she was so desperately ill that the doctor thought she would die before reaching the hospital. I performed double mastoidectomy, and do not believe I ever saw the zygomatic cells so far forward as in this instance. My incision in one side had to be extended far toward the eye to secure good exposure. The patient's temperature at the time was 105.5°F. We exposed the knee of the sinus in both sides but they were apparently normal, and it was a question whether we should open the sinus or not; we finally decided not to do it. A few days later a large abscess developed in the right foot which was incised and a half pint of pus liberated under pressure. We aspirated the left hip and withdrew about a half pint of pus. Much to our surprise the patient began to improve shortly afterward and made a rapid recovery.

I congratulate Dr. Marks on the excellence of his paper.

A. M. Alden, St. Louis, Mo.: I have been very much interested in these cases reported by Dr. Marks. Otogenic sepsis is one of the most interesting and at the same time one of the most serious conditions with which the otologic surgeon has to deal. The diagnosis of a septic thrombus in the lateral sinus is sometimes easy, but in many cases, the findings are clouded with enough uncertainty to make the case a very difficult problem. An understanding of the clinical manifestations of ear infections is only possible in the light of an adequate comprehension of the pathology of otitis media and mastoiditis.

Kopetzky a number of years ago differentiated mastoiditis into two general types, (1) the coalescent and (2) the hemorrhagic. In the coalescent form of the disease, the local spread of the infection takes place by direct contiguity, from the ear to the attic, the additus, the mastoid antrum with its pneumatic cells and the contiguous intracranial structures. In this form of the disease, the symptoms and the pathology are both largely the result of pressure and a rupture externalward with its skin signs and sub-periosteal abscess are frequent accompaniments. In the other form of the disease, that is the hemorrhagic type, the local spread of the infection takes place not by contiguity, but apparently by way of local, blood or lymph streams. The infection here is often a massive one and the time which may elapse from the onset of the disease until a full blown intracranial complication is present, is often surprisingly short, because the middle ear, the mastoid and the neighboring dura are often apparently simultaneously invaded by the same shower of organisms.

Naturally the surgical treatment of these two conditions is quite different particularly as regards the choice of the time when operation should be carried out. Everything else being equal, it is far better to allow the coalescent type of the disease to wait until the infection is fairly well walled off and a certain amount of immunity established before surgical treatment is instituted. The intracranial complications arising in this form of the disease, are in order of their frequency: Perisinus abscess, lateral sinus thrombosis, meningitis, and brain abscess of either the cerebellar or temporal lobe type. In the hemorrhagic type of the disease, the intracranial complications arise in a somewhat different order of frequency: meningitis, lateral sinus thrombosis, and brain abscess.

Last fall I saw a boy of 12 years old who was referred to me by one of our pediatrists,with the following history: Ten days before I saw him, he had complained of severe earache for a few hours and the pediatrist was called in. His fever at that time was 103, the drum was red and bulging and was opened with release of a few drops of serosanguinous fluid. The child's fever receded and when seen two days later, the drum had healed and there was no further evidence of the ear infection. For five days following this, the child was well, then suddenly his fever rose to 104, and all of his large joints became swollen and painful. When I saw him, ten days after the onset of the original infection, his arms and legs were so stiff that it was impossible to straighten him out on the table for any sort of an examination. He appeared to be very septic, the white count was 16,500, red cells 3,700,000 and the hemoglobin 62 per cent. X-rays of the two mastoids showed very little difference. An examination of the ear which had been the seat of the infection ten days before, showed a drum which was intact, retracted and of almost normal lustre. The temperature at this time was 105 and the child was manifestly desperately ill. Based upon the history alone I opened the mastoid on the effected side and the mastoid cells macroscopically appeared to be normal. I said to my assistant: "I fear we have struck a dry hole in this case." In order to make the exploration complete, I took off the internal bony cortex covering the lateral sinus and the moment that my gouge passed through the bony plate, free pus flowed into the wound. The external wall of the lateral sinus was entirely necrotic and contained liquid pus. The internal jugular vein was ligated, the sinus cleaned out and free bleeding obtained from the posterior end. A transfusion of 300 cc. of blood was given that night and repeated the next day. On the fourth day following operation, the stiffness in the joints began to subside and on the ninth day the child was able to lay straight in bed. Two more transfusions of whole blood were given during the course of his convalesence.

This is a typical example of the hemorrhagic variety of mastoiditis. The streptococcus infection in this case in all probability involved all of the ear structures and the lateral sinus at the same time. The infection in the ear and mastoid cleared up clinically, while the intracranial infection continued with only a temporary remission. Cases like this are puzzling indeed and as I have mentioned before understandable only when we know what is actually taking place in the presence of home of these infections which we are called upon to diagnose and treat.

Within the last few years, certain new things in the way of diagnostic technique have been developed which are often of great assistance in helping to clear up some of the obscurity which surrounds these cases. One is the technique of Ottenberg mentioned by Dr. Marks. Another is the modification of the spinal manometer test suggested by Togey about four years ago. Both of these measures I have found to be very valuable in obscure cases and lately have been placing great reliance upon the use of the manometer test. Upon several occasions, I have ligated the internal jugular vein, based upon this test and subsequent opening of the sinus has shown it to be completely obliterated.

Another feature upon which I place great stress in these streptococcus cases, is the complete blood picture. By this, I mean the white and differential count, the hemoglobin percentage by the Sahli method and the total erythrocyte count. In steptococcus hemolyticus infection, and most of these intracranial complications are due to some strain of this organism, almost without exception there will be found a very marked reduction in the hemoglobin as shown by Sahli. It is our custom where the hemoglobin is reduced below 70 per cent, to give a transfusion of whole blood. Indeed in many cases where the patient is manifestly septic, I do not wait for this much reduction for I believe that there is no single therapeutic measure in the treatment of sepsis that is of equal value to transfusion. While citrated blood is better than no blood, whole blood is much superior for this particular purpose and at the St. Louis Children's Hospital, the direct transfusion is our standard technique. I think I have helped more cases with repeated transfusions than I have even by surgery.

R. H. Cowley, Berea: In regard to the postoperative complications in our mastoid work, I presume like the most of you I was taught that a sudden chill and rise of temperature constituted fairly conclusive evidence of sinus thrombosis. I do not wish to cast any discredit on this finding, but I do want to emphasize another side of the question; that is, the patient may have a severe chill and very decided rise in temperature without having sinus thrombosis, especially in cases where erysipelas develops. Erysipelas may develop and yet no sign of it be noted until thirty-six or forty-eight hours after the chill. I believe that is a very important point.

A short time ago I operated upon a boy for mastoiditis. About a week after the operation his temperature rose to 105.5°F. with a very marked chill. He was so desperately ill that I thought I would merely be hastening his death if I tried to do anything further. I did not have the equipment for making the test mentioned by Dr. Alden, and probably not many of us would be able to make the test anyway, so I took the chance and did nothing. About thirty-six hours later the boy developed erysipelas, for which the serum was given and he finally recovered.

I would like to emphasize the importance of milk injections in cases of otogenic sepsis. As Dr. Alden has said, these infections are often due to hemolytic streptococcus, and that is exactly the organism that responds to milk injections. Good results may be obtained in these cases of otogenic sepsis if the patient is let alone and milk injections used, but meddlesome surgery is apt to do more harm than good. In listening to the report of Dr. Mark's first case, I wondered if the patient had been left alone and milk injections given she might not have gotten well. In venous thrombosis in other parts of the body we would not think of resorting to surgery. In thrombosis of the saphenous vein following typhoid fever, etc., we let these these patients alone, the clot becomes organized and shrinks and the patients get well. I think there should be more said about the conservative management of these cases. We should not resort to surgery unless we are absolutely certain we are right.

The roentgen-ray findings in mastoid cases should be interpreted with a great deal of care. I have to deal with young people from the mountains where they have had no previous medical attention. In many healthy cases roentgen-ray examination shows some abnormality of the mastoid without clinical symptoms, ranging from slight cloudiness to great thickening of the bone, in some instances complete destruction of the mastoid cells. Therefore, when we interpret the roentgen-ray findings in these cases we must be very careful about our conclusions.

William N. Offut, Lexington: I assisted Dr. Marks in operating on the first case he reported. I want to emphasize the importance of the history, high temperature, chills, etc. in the diagnosis of lateral sinus thrombosis. When Dr. Marks uncovered the vein I was quite positive that the patient did not have lateral sinus thrombosis; the vein was pulsating freely and appeared perfectly normal. When a needle was introduced no blood was obtained. When the sinus was opened, however, an extensive thrombus was found as Dr. Marks has stated.

Robert Walter Bledsoe, Covington: I am sure all of us this season have had unusual experiences in just such cases as Dr. Marks has so beautifully portrayed, and many of them have terminated seriously. Dr. Marks is to be congratulated on the fullness and completeness of his report, and we surely will all be benefitted by it in consolation if not otherwise. Personally I feel very grateful to him because misery loves company. I think there should be more discussion with greater elucidation of some of the obscure points by other gentlemen who have had similar experiences.

I wish to briefly refer to a case similar to the first one reported by Dr. Marks. The patient, a boy aged seven years, was brought to me from the country with a history of having had measles and had been complaining of pain in his ear for only three days. When admitted to hospital in the morning there was already an external perforation of the mastoid, and a large pocket of pus was found in the muscle at time of operation. This amount of damage could not have taken place in such a short time. Roentgen-ray examination showed marked destruction of the mastoid. I operated that afternoon and found all mastoid cells from tip to roof broken down and filled with pus and granulations and the dura exposed. After the operation all symptoms abated for five days, when he began having general convulsions and there was complete hemiplegia of the left side, due apparently to abscess in the right temporo-sphenoidal lobe of the brain. I did a trephine operation, but found no abscess within the brain in any direction, but did find far forward between the temporo-sphenoidal and frontal lobes, a large amount of pus,—two tablespoonfuls,—to be exact. There was apparently no pus in any other part of the brain. Drainage was established and most of the hemiplegia disappeared,—he was able to use the left arm and leg. The boy died promptly, within three or four days. At the post mortem examination we found marked basilar meningitis. Dr. Robert Ingram, neurologist, who saw the patient in consultation and was present at the autopsy, assured me that this boy must have already had basilar meningitis at the time I performed the mastoid operation. However, there were not sufficient symptoms at that time to make the diagnosis.

I would like to hear the experiences of some of the other gentlemen in regard to these mastoid and sinus cases.

Samuel B. Marks, Lexington (in closing): I appreciate the discussion. As. Dr. Griffith has said, I presume we have all seen during the past winter a great many patients with serious ear trouble with unusual complications. I think he exercised rare judgment in not opening the sinus in the case he briefly related.

In the case of the little girl upon whom I performed bilateral mastoidectomy and who had septic pneumonia, etc.—what I thought she had was sinus thrombosis. That child was so desperately ill that we did not consider giving her blood transfusion or even milk injections fearing that either of these procedures might prove fatal. During her illness she was cheerful and said she felt fine, although her temperature was high and her pulse markedly accelerated. Ottenberg has shown that blood from the uninvolved side always shows greater bacterial growth than blood from the affected side where thrombosis is complete. In this case culture was taken at six o'clock in the afternoon, and at ten o'clock the next morning we could hardly see through the agar plate because of the tremendous bacterial growth.

I have had no experience with the Queckenstedt test. I have read about it, and some men are very enthusiastic over the results obtained and I was glad to hear Dr. Alden say it was so often a very helpful procedure. Any method that will assist in making the diagnosis in these cases is certainly worthy of fullest trial.

Another thing we must watch for in these cases is pyelitis. The boy whose case I have reported developed pyelitis about a week after mastoidectomy. He had then ben practically normal for two or three days. On the eighth day there was another marked bacterial shower in the urine with increase in the pyelitis.

The roentgen-ray is of great value in the diagnosis of mastoiditis. I believe nearly all infected mastoids show some cloudiness in the roentgenogram. However, the evidence upon which we place the most dependence in the x-ray pictur is not cloudiness but destruction of the walls between the cells. The roentgenogram may show the mastoid fairly clear, but if on careful study destruction of the cell walls is discovered, that makes the picture positive.

The case mentioned by Dr. Bledsoe was undoubtedly one of leptomeningitis. I recently saw a woman of 60, a school teacher, who became unconscious one day in school and had been ill for a month. She complained of pain in her neck and arm with some discomfort in the ear. I examined her ear and found it normal in appearance except the drum was somewhat retracted. I did not open it because I could not find the canal. She had some stiffness of the neck and musculospiral paralysis on the left side. I treated her sinuses and inflated the ear and she said she felt much better. She was then taken to Cincinnati where a diagnosis of early leptomeningitis was made based upon evidence secured by spinal puncture. The cell count of the spinal fluid was 3,000 but did not show a positive culture. The second day afterward the ear drum ruptured spontaneously and drained clear fluid. In a Cincinnati hospital the temporo-sphenoid region was exposed and evidence of meningitis found but no abscess was located nor was the sinus thrombosed. She died a few days later. Autopsy was not permitted.

I saw a similar case a few weeks ago. The patient had leftsided headache and I thought she had some trouble about the sphenoid. I treated her a few days and she expressed herself as greatly relieved. A week later her headache became worse and she had slight bulging of the ear drum which contained a large scar but was otherwise normal and I did not open it. She stated that she had been bleeding profusly at her menstrual periods, and there was some hemorrhage between times. She called another physician the next night at which time she was delirious and wanted to get out of bed. He saw her again at five o'clock in the morning and took her to the hospital where she was seen by me about seven o'clock. She was then desperately ill and we thought she had meningitis. Roentgen-ray examination showed that the sinuses were negative. There was slight engorgement of the fundal vessels of the left eye, but the other fundus was normal. I then opened her ear and found nothing. The spinal fluid showed streptococcus. She died within a few hours. We were unable to secure permission for an autopsy, but I am certain she had leptomeningitis. The suddenness and severity of the attack was overwhelming and the patient promptly succumbed.

In these sinus cases we cannot always wait for the development of classical symptoms. I have seen two othr similar cases of meningitis developing during the course of acute ear disease. Both patients had cistern drainage but both died.

SOME THOUGHTS CONCERNING THE DIAGNOSTICS INCIDENT TO REFRACTION.*

By J. D. Williams, M. D., Ashland.

Anderson, in 1899, said: 'It seems to me the best and most helpful feature of ophthalmology is that it has its relations, close or more remote, with every branch of medicine and surgery: indeed with almost every branch of science.'' Today these relations are closer than ever before, and their recognition is a matter of the greatest importance to the refractionist whose interest is altruistic and scientific as distinguished from him of a certain class who is actuated by pecuniary considerations solely.

My title is, in a measure, misleading, because this paper is not to deal with the problems of refraction per se. Rather is its aim to emphasize the great need for making a complete examination of the whole eye in every case that presents itself for refractive correction. To say before this body that such a procedure should be invariably followed is, of course, to state the obvious and unquestioned. The experience of every man of wide practice in eye work is replete with cases he can call instantly to mind in which some grave, but hitherto unsuspected, condition has been discovered in the process of such an examination.

Since in no other part of the human economy are the blood vessels and nerve bundles clearly to be seen and studied by direct vision, a surprising number of both immediate and far removed pathologic systemic conditions may be detected in the eye,—in many cases, long before they evidence themselves elsewhere. Locally, there are many destructive maladies which all too frequently operate to the prejudice of vision in some degree, even to the extent of its practical or complete loss, which are determined by the painstaking examiner when often the patient is wholly unaware of their presence, or perchance attributes them to some happening in cause and effect of small significance in itself.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

The application of the principles set forth herein, conceivably may not seem justified from the angle of immediate or direct monetary return. Certainly a considerable portion of a busy man's time would be taken up beyond that usually required for refraction. However, there are, fortunately, compensations—idealistically and scientifically, in the realization of a duty well done; in a more material sense (from such an important stand point as that of financial recompense) there is the appreciation to be manifested by the continued loyalty of the patients who have noted, and have benefitted by, this extra attention and of equal value is their warm advocacy of their oculist, by reason of this fact, among their friends and acquaintances, with the result of a satisfactory broadening of his clientele.

Then it seems to me proved, and acceptable as a premise, that refraction, slighted, hurried through as it is by not a few busy oculists because of the infinite patience, tact, and time required, should for itself—since it properly belongs in the sphere of the medical man, and, as well, because of the opportunity in its performance for him to make diagnoses of inestimable good to the patient—be in no wise neglected. If the great importance of determining (through the medium of a precise consideration of the eye from the lids to the retina) whether or not the patient harbors some disease, discoverable only in the eye perhaps, when he comes for vision improvement, could be earnestly stressed to him, there would be more and earlier correct diagnoses, to the lasting credit of the oculist and the not-to-be-doubted benefit of the patient.

It is a reproach on the profession of medicine that there are doctors who, without protest, see their patients drift, or actually send them, to glass fitters who naturally have no knowledge of the eye. The result of this circumstance (a not rare one, by any means) is, perhaps, irreparable loss of time and sight, and, in case of malignancy, even life itself. There is not an oculist of long experience who has not seen these things happen many times, and then, when the patient came to him, been torn between anger and pity, and, for his profession, shame, because of his helplessness to stay a disaster inevitable.

A happy coincidence is it that mydriatics or cyclopegics must be used in such a proportion of eye tests, since it is possible to properly inspect the lens and fundus only through a dilated pupil. This admittedly involves a previous finger or other determination of the ocular tension and a quick look at the disc. In this connection, I have less fear of euphthalmine than of any other mydriatic, and use it exclusively in the deep study of those cases past middle age, in which cyclopegics are rarely necessary or advisable.

I am moved more particularly in the writing of this paper by the frequency of that terrible disease, or symptom, as some will have it, glaucoma, the etiology and actual pathology of which are the despair of the theorists, and the treatment of which is so pitifully unsatisfactory in a distressing percentage of cases. Recently, in addition to those victims of the inflammatory type who are always with us and who seek our ministrations because of their own recognition of some eye illness, and in addition, likewise, to those cases of the chronic type which we all see so regularly, there have come under my observation two cases of simple glaucoma, in neither of which was the patient conscious of more than a need for glasses. In these, the non-medical refractionist would, in blissful ignorance, have fitted the patients with glasses, and been, perhaps, not the least concerned that these people were returning for such frequent changes as to have excited the apprehension of even a beginner in the field of ophthalmology.

Of less immediate, but grave, importance are the various lens opacities occurring in all stages of life, and demanding, in the milder degrees certainly, the exercise of every means at our command in their detection. Such symptomatic causes of cataract as are measurably removable, namely, albuminuric, diabetic, arteriosclerotic, thermic, glaucomatous, malarial, and so on, come to our notice, usually, only when the patient is urged by what he takes to be a need for glasses. If the patient is in age approaching, or is past, the meridian of life, particularly if he has a history of frequent changes of glasses, and the ophthalmometric measurements and retinoscope show an astigmatism, axis *vertical*, and the trial case gives an astigmatism of the same sign, axis *horizontal*, one would suspect lenticular changes which would suggest, of course, beginning cataract. Likewise, we are forewarned, as we examine the eye, of an impending cerebral hemorrhage, or we learn of a brain or intra-orbital tumor, of serious accessory sinus involvement, of a crippled heart evidenced by an embolism of the central retinal vessels, of a central lues, a hypophyseal malfunction, or of any one of many other potent systemic lesions not theretofore suspected by the patient or the internist.

Egan, in his Indiana presidential address, December, 1927, in commenting on Professor Alexander's distum that *the ear man must know all*, goes on to assert that even more vital is it that *the eye man must know all.* He says, "From the idea of refraction as the sum total of the eye and its treatment we have advanced to the place where we not only must know the minutest detail of its anatomy and pathology, but we must know its intimate connections with the brain also, and be able to diagnose from them. We must know its relation to other structures in its immediate neighborhood from the standpoint of focal infection, and, likewise, to the whole human body and its pathology, as it affects the eye, if we seriously attempt eye work. I think Alexander's statement applies as well here; one must know all if he would know the eye." With the foregoing we must all heartily agree. Personally, I would feel that I had slighted my duty if I failed to make an entire examination of the eyes of every refraction patient. The time is as nothing; the returns, even if not tangible, are very worthwhile.

It seems high time the public, and general practitioner, as well, be educated as to these matters, and I cannot escape the feeling of our obligation to spread this information in every community possible by as wide publicity as is practicable and ethical. While this counsel may well be propagated through the medium of the local news purveyors, we should in no wise neglect the opportunity offered us in our relationships with the general practitioner, and in our daily work, of urging upon our past-middle-life clientele the wisdom, rather the necessity, of submitting themselves to an oculist's examination once, or preferably twice each year.

I find these people receptive to, and profoundly grateful for, this advice, as they are in general, it is to be presumed, when any suggestions are made tending toward the preservation or improvement of their vision.

In conclusion, I submit that the oculist, and by that fact the refractionist, with his instruments of precision lacks little of being indispensable to the general practitioner not only but to those who specialize in any of the branches of our art.

DISCUSSION.

Adolph O. Pfingst, Louisville: It is quite a pleasure to be able to open the discussion on a practical and commonsense paper as Dr. Williams has presented. I am in perfect accord with his opinion that through our improved methods of diagnosis we are making ourselves increasingly more valuable to the internists. We are sentinals and frequently uncover early changes in the eye that lead to diagnoses that otherwise would be missed by the internists. Many of these cases perhaps are sent to us by men in other departments of medical practice, but the majority of the cases we find in the course of our routine examination of the eyes of those who come to us direct. Often by our methods of investigation we find conditions that are overlooked by men who are not versed in visual conditions. Dr. Williams has covered so much territory that we cannot hope to discuss his paper in detail. The study of pupils alone would require hours. You are all familiar with the slow or sluggish pupil which so often is present in tabes long before the Argyll-Robertson pupil has developed. These changes are undoubtedly overlooked by men who are not versed in examination of the eye, and whose training has not been sufficient to enable them to differentiate between normal and pathological conditions.

By our methods of investigation we frequently discover motor troubles that lead to diagnoses of other affections. Nystagmus is elicited by careful examination and may furnish valuable aid to the internist and surgeon in diagnoses of obscure troubles. The early recognition of paralysis of the external and internal ocular muscles may also lead to diagnoses on the part of the internist before other signs of disease develop. I am sure all of us have seen cases of paresis which lead to the suspicion that we had to deal with teritary syphilis in which the blood test furnishes confirmatory evidence. In recent years, we have been seeing much encephalitis lethargica. It is probably true that we see these cases earlier and more frequently than the internists, because so many of these patients have motor disturbances, such as ptosis, paralytic squint, loss of accomodation, etc., hence we are able to lend valuable assistance to the internist in the diagnosis of this disease before constitutional symptoms have developed.

As to ophthalmoscopy, we all owe a debt of gratitude to Helmholz for giving us this instrument. I need not go into details as to the early recognition of fundus changes which lead to the diagnosis of Bright's disease, diabetes, intracranial disease, etc. This means of investigation is of inestimable value to the internist. Through the introduction of the electric ophthalmoscope ophthalmoscopy has been made much easier than it formerly was and many neurologists and internists are now versed in the examination of the interior of the eyes.

I think we formerly attached too much importance to slight defects in central vision. In recent years visual field measurements have been made with much greater frequency than formerly and the interpretation of defects in the fields have been of much benefit in the diagnosis of nervous diseases and intracranial affections.

A point made by the essayist which I would especially endorse is that the internist does not seem to realize fully the relation that should exist between him and the oculist. It has always been incomprehensible to me why men in general practice, good men too, will employ every means to make a correct diagnosis, and yet when it comes to the question of the eyes they advise their patients to go to an optician or optometrist to have their eyes examined. We might with equal propriety send our eye patients who are in need of a general examination to the chiropractor. It would be a parellel case. An important point has been emphasized by Dr. Williams. It seems to me that his paper should be brought before the general session of the State Society.

D. M. Griffith, Owensboro: Dr. Williams has given us a splendid paper and I want to endorse everything he said. Too much emphasis cannot be placed upon the importance of early diagnosis in diseases of the eye. As an illustration I may mention an incident that occurred in my locality recently. A prominent business man was under the care of a general practitioner and was being treated for some systemic disturbance. One day this physician asked me to examine the man's head and eyes to determine whether any abnormality existed. After a careful investigation I informed the doctor that the patient had ocular symptoms which indicated serious trouble, that I believed he had a brain tumor. The next thing I heard was that the man had been sent to Louisville, was operated upon and died. However, this is not said in criticism of the surgeon who performed the operation. The case aptly illustrates what Dr. Pfingst has said about early examinations. If this man had been referred to the surgeon earlier his life might have ben saved.

L. M. Scott, Jellico, Tenn.: I appreciate very much the opportunity of hearing the splendid paper just read by Dr. Williams. Refraction is one of the most imortant branches of our work as eye men, and yet in no other branch of ophthalmology do we observe such indifferent results. This subject is of peculiar interest to me, as I constantly meet with so many cases of improper correction. Aside from the bungling methods of the itinerant spectacle vender, one often sees poor and unscientific results upon the part of some, otherwise good ophthalmologists. This is not, of course, due to lack of knowledge of this subject upon the part of such men, but rather to insufficient time and care in the examination of patients needing refraction.

If Dr. Williams or any other member of this section is asked to present a paper before the general session of your State Association, I trust that such paper will receive a better and a more appreciative hearing than is usually the case when one of our section members reads a paper before our general session in Tennessee. Upon such occasions I have more than once observed men of the general session get up and walk out, and also heard such side remarks as "why don't you men read your papers before your own section."

As the essayist has stated, there seems to be a tendency upon the part of a great many internists to refer their patients suffering from refractive errors to some incompetent person to be fitted with glasses. The best refractionist occasionally meets with a case where, by the most scientific methods of examination, it is difficult to make a correct diagnosis. I know of no condition in the practice of medicine that can give rise to more and variable reflex nervous symptoms than a bad case of eye-strain due to some astigmatic error, especially if the patient is one of a neurotic type. In such cases I frequently find it necessary to thoroughly relax the accommodation with a one percent solution of atropin sulphate which is instilled into the eyes three times a day for a period of five days. By this method we are able to bring out all the latent trouble, which we are often unable to do with the use of homatropin at one sitting, which is our usual method of producing cycloplegia.

Samuel G. Dabney, Louisville: I can add very little to what has already been said. I have listened with interest to the paper and the discussion and think the subject has been very well covered. We are all familiar with the great addition to our knowledge of general diseases that the ophthalmoscope has given us, such as diabetes, arteriosclerosis, etc.

I was especially interested in Dr. Pfingst's allusion to encephalitis lethargica. I have wondered if our eye test books are not mistaken in the proportion of ocular symptoms occurring in that disease. It is stated by such authorities as Foster Moore and many others that ocular symptoms are among the first manifestations of encephalitis in about seventy per cent of cases. If this were true it seems strange that among the tremendous number of cases reported there have not been observed more eye symptoms. A great many of these cases do not have eye symptoms, and I have wondered whether the proportion of ocular paralyses among the first symptoms of encephalitis lethargica is as great as eye men seem to think.

I recall having seen two young men with encephalitis about the time the disease first appeared in this locality. One, a high school boy of seventeen, came to my office complaining of double sight, which is rather unusual in an individual of that age. His vision was normal, but he had paralysis of the right abducens. I took his temperature and found it 101°F. He had complained of a little dizziness beforehand. From the literature that was just appearing at that time I strongly suspected encephalitis lethargica. The boy's father was a physician and I told him of my suspicion. The boy was seen by a prominent neurologist and an internist and the diagnosis of encephalitis was established. I saw another young man who lived within one block of the patient I have just mentioned about a week later. He came in complaining of similar symptoms; he had an undoubted case of encephalitis lethargica. When we eye men see eye symptoms in encephalitis we are inclined to think they are the most important and prominent manifestations.

J. D. Williams, Ashland (in closing): I appreciate the discussion and think the idea expressed by one of the speakers that my paper should appeal more to the general practitioner than to the eye secialist is correct. At the suggestion of Drs. Pfingst and McCormack, and if it is the desire of the program committee, I shall be glad to read the paper changed somewhat before the general session at Richmond.

I have only recently examined about two thousand school children, and it was astonishing to me to find that between sixty and seventy-five per cent of them had ocular defects, muscular imbalance, trachoma, and other conjunctival involvement.

It is amazing sometimes to note the mistakes made by non-medical practitioners who make a business of fitting glasses. Not long ago, when I returned home from a trip, a patient came to see me stating that she had had glasses changed by one of these men five times within the two months of my absence. It is impossible for non-medical men to correctly prescribe glasses for more than a small minority of the people, and it is our duty to spread this information where it is needed that the disastrous consequences set forth in this paper may be avoided.

Reduction of a Strangulated Hernia en Masse.—A review of cases reported in the literature is presented together with thirty-six recent cases, including three of the author's. Chavannaz wasns that in spite of its rarity the possibility of reduction of a strangulated hernia en bloc should be kept in mind. The accident occurred most frequent in elderly persons. The male sex is particularly predisposed. Reduction en bloc of the strangulated mass is almost always the result of attempts at taxis by the physician or the patient. In this series it occurred with greatest frequency in the oblique inguinal hernia of the old. Death is the natural outcome if the condition is left to itself. The diagnosis may be quite difficult. It is most frequently confused with intestinal obstruction. The principal diagnostic indications are the persistence of symptoms after the diappearance of the hernial mass and the existence of a tumefaction at the hernial site. Early surgical intervention is the essential condition for success. The percentage of recoveries in this series was 75, as contrasted with a percentage of 52 in the Corner and Howitt series. With earlier recognition, better results will be obtained.

PITUITARY TUMOR WITH EYE SYMPTOMS: HISTORY OF CASE WIH OPERATION AND EARLY BENEFICIAL RESULTS.*

By M. C. Baker, M. D., Louisville.

On April 23, 1924, Miss A. L. B., aged 20, came to my office with the following history and symptoms: A month or so previously while busily engaged in two or three occupations she had a "nervous breakdown." She was extremely nervous and had to discontinue her work for a period of time. She had never menstruated and has not to the present time.

In the latter part of March she had severe pain over the left eye and left side of head. This did not interfere with her sleep and caused no nausea or dizziness; and about ten days later, or just a few days before coming to my office, the left upper lid drooped so that she could not lift it. On raising the lid she noticed that the eye was turned outward and the "sight was big." Also there was double vision. During the year previous she had gained in weight 40 or 50 pounds. Her health had been exceptionally good.

My examination on April 23, 1924, showed complete ptosis of left upper lid, a widely dilated pupil with no reaction to light and no accommodation. The eye was turned outward and there was inability to turn eye inward or upward. The vision in each eye was 20-20 and there was no contraction in the fields of vision of either eye. The fundi appeared normal. There was no astigmatism and no refractive error. Wassermann blood reaction negative.

A few days later we had some abscessed teeth removed. Put patient on strychnine tablets. Six weeks later ptosis and divergence had both improved. In July there was slight pupillary reflex. In August the eyes were straight and she stopped seeing double, although still unable to turn eye inward or upward.

For several months kept patient periodically on protiodide tablets, strychnine and hydriodic acid. In June, 1925, pupillary reaction was fairly active, but pupil remained dilated. Had consultation with Dr. L. W. Neblett. He advised provocative Wassermann. This was done and reported negative. Dr. Neblett advised administration of combination of desicated thyroid and anterior pituitary extract assuming that condition was one of enlarged pituitary body. This medication was continued for several months with no marked change in patient's condition.

In March, 1926, patient was shown before the Louisville Eye and Ear Society. About fifteen specialists were present and examined the patient but could offer no diagnosis or real suggestion of help.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

In the next few months she had one attack of tonsillitis and two attacks of acute sinusitis.

In February, 1927, Dr. Dabney examined the patient thoroughly in his office. He reported direct vision in the left eye 20-30 but decided restriction of field of vision downward, especially downward and inward. Also a decided pallor of optic nerve. He made no direct diagnosis saying that further developments would have to be awaited. He intimated that trouble could be due to pressure or to focal infection. He said that pituitary symptoms should be watched for though case was far from typical of such disease.

In March Dr. R. A. Bate examined patient. In May Dr. John Moren went over the case. Neither made a diagnosis.

In June, 1927, tonsillectomy was performed.

In July roentgen-ray examination of sinuses and skull for possible brain tumor was made by reliable roentgenologist. His report was negative. Still feeling I had a brain tumor case, the patient was sent back to him in August for a recheck especially of pituitary region. He reported decidedly that there was no erosion of the sella or evidence of tumor formation. This "threw me off the track."

In October patient moved to West Kentucky, discontinued treatment, and was lost sight of.

In March, 1928, the patient returned to my office with symptoms greatly exaggerated. Ptosis had recurred, pupillary reflex entirely absent, she was practically blind in the right visual field of both eyes, there was decided optic atrophy in left eye, there was slight facial paralysis on right side, tongue was paralyzed on right side and deglutition was difficult. She was very nervous, apprehensive and flighty and would go to sleep on the slightest provocation.

Patient was immediately referred to Dr. R. Glen Spurling. He made prompt diagnosis of pituitary tumor. A different roentgenologist examined the patient and reported marked enlargement of pituitary fossa, the sphenoid sinus almost obliterated, the posterior clinoids eroded away and considerable erosion of anterior one,—the findings those of large pituitary tumor probably adenomatous in type. Dr. Spurling developed in his history taking and examination that the girl's skin had always been dry and course, she does not perspire freely even in hot weather, is susceptible to cold and stands the winter months badly. There is excessive hair over the body, being very abundant on the legs and in the axillary and public regions.

Patient was operated on March 26th by Dr. Spurling with the writer assisting. The transphenoidal route was chosen. A perfect submucous resection of the septum was done, the prow of the vomer was removed with a portion of the anterior wall of the sphenoid. This brought the floor of the sella turcica into view. The bone of the sella was of tissue paper thinness. A crucical incision into the dura covering the pituitary tumor was made. The tumor was removed with the pituitary spoon and suction. The field was left perfectly dry. Large nasal plugs inserted in each nostril. The incision was closed with one catgut suture. Patient stood the operation well.

After about ten days she left the hospital, was able to go to a laboratory in town where she took a series of six x-ray treatments.

On April 10th she was in Dr. Spurling's office and also in mine. She was bright and alert, she was able to move the left eye a fraction past the median line, the pupil was less dilated. Facial and tongue paralysis entirely disappeared and swallowing about normal.

She went home April 11th, to return in two months for further x-ray therapy.

Conclusions:

1. It is very evident that the tumor was growing for a matter of five years or more.

2. Lack of typical symptoms and improvements under therapeutic measures used kept us from making an early diagnosis.

3. Diagnosis would have been made eight months sooner had it not been for an erroneous reading of x-ray plates by a man in whom I had confidence.

4. Medication used on patient during the three and a half years under my care must have had a marked effect in keeping the size of the tumor reduced, because during the time from October, 1927, to March, 1928, my patient was off of treatment and symptoms became greatly exaggerated.

5. I am grateful to Dr. Spurling for a swift and accurate diagnosis and for a skillful, rapid and successful operation.

DISCUSSION.

R. Glenn Spurling, Louisville: There are several unusual aspects to this case which I should lige to discuss briefly.

Firstly: The early appearance of symptoms associated with an adenoma of the pituitary gland. She has presumably suffered from anterior lobe insufficiency since puberty. This is attested to by the fact that she has never menstruated, and that her secondary sexual characteristics have been retarded in their onset. It is not unusual to find dyspituitarism at this early age, but it is rather unusual to have it result from an adenoma of the anterior lobe. Most usually in these early cases it is due to a craniopharyngeal pouch cyst.

Secondly: The patient has had eye symptoms for over five years, yet at this late date she still has fairly good vision left. Of course, there is a complete right homonymous hemianopsia with atrophy of the corresponding sides of the discs, yet the remaining optic fibres seem to be intact. The extraocular palsy is also rather unusual. This, of course, must be explained upon the assumption that the tumor has invaded the brain substance, and has either impinged upon the nerves supplied by the extraocular muscles themselves or upon their nuclei. In view of the fact that the visual fields are involved symmetrically, and the extraocular palsies are present only in the left eye, and as there is no evidence of there having been increased intracranial prssure, I should assume that the brain invasian has extended laterally rather than posteriorly. Another interesting thing in the case is the fact that this girl did not have headaches except for a brief period shortly after the onset of symptoms. At that time, however, her headaches were typically those of pituitary disease. This raises the question as to the condition responsible for typical pituitary headaches. It is assumed that they are due to increased pressure within the sella turcica, and when once a tumor escapes from the sella turcica, the headaches are relieved. However, generalized headaches may arise secondarily to hydrocephalus due to the impingement of the tumor on the third ventricle, thereby causing interanal hydrocephalus. These facts are additional evidences that the tumor, when it did escape from the sella turcica in this case, invaded laterally rather than posteriorly and upward.

The clinical syndrome in this case is quite typically one of hypopituitarism. The salient facts in the diagnosis are amenorrhea, abnormal distribution of body hair, abnormal type of skin, sudden gain of fifty pounds in weight over a period of a few months, eye symptoms, and the usual clinical picture of a lower basal metabolic rate.

The defects in the visual fields in pituitary disease are in the majority of instances characteristic. Most commonly we find a bitemporal heminaopsia. In one case that we have seen recently, with a proven pituitary adenoma, there was a definite binasal heminaopsia. In two others there were homonymous heminaopsia. In one case, the visual filled defects were only demonstrable by careful testing of the color field; the object fields failed to show any defect whatsoever.

In view of the fact that there was most certainly a fairly large intracranial extension of the tumor, you may wonder why we selected the transphenoidal route for our operative procedure. We know from experience that the most we can expect from operative treatment of pituitary tumors is to save the eyesight and to relieve suffering. It is impossible as far as we now know to totally remove the tumor. By sub-sellar decompression, we are able to take out a fairly large quantity of tumor, and more than this we provide an avenue for escape of the tumor as it grows, by allowing it to extrude itself into the sphenoid sinus. It is not uncommon for a patient to obtain remarkable relief, even with a large pituitary adenoma, with transphenoidal operation. Of course it may be necessary at some future date to attack the intracranial extension by transfrontal operation.

The last point I wish to make is the necessity for close cooperation between the roentgenologist and the surgeon. This is not only necessary in the matter of diagnosis but also in treatment of the case. The x-ray treatment of intracranial tumors is a great art, and unless properly done may do more harm than good. On the other hand properly applied, x-ray treatment of pituitary adenomas offers one of the most favorable means that we know for preventing rapid growth. X-ray treatment before operation is in many cases very dangerous, presumably for the same reason that it is dangerous to treat tumors of the cerebrum before adequate decompression has been made.

What the final result in this case will be I am not prepared to say. Thus far the patient is showing remarkable improvement. I have seen her three months postoperatively, and the extraocular palsies are practically gone; her vision is remarkably improved; she is no longer drowsy and stupid; in fact she is according to her family and her local doctor, a changed person.

Adolph O. Pfingst, Louisville: After the scientific discussion by Dr. Spurling, I hesitate to take the floor, yet the case reported is of such interest that I think some of us should discuss it. There are two points that should be especially emphasized in this case.

First: We have all been taught to believe that intracranial growths of the hypophysis are far easier to diagnose than any other intracranial tumors. That observation would hardly hold in this particular case.

Second: Where there are symptoms referable to the head with obscure diagnosis, and where the external ocular muscles are involved, we should be suspicious of an extensive growth arising in the hypophysis.

As to the feature of choked disc in cases such as the one under discussion, it is the accepted belief that intracranial growths are associated with papilledema in more than eighty per cent of cases. It is also known that hypophyseal tumors are not frequently associated with papilledema or optic neuritis because the tumor is anterior to that portion of the brain where pressure would involve the ventricles and secondarily increase the fluid in the vaginal sheathes of the optic nerves. In this particular case it seems strange to me that there was no papilledema as the involvement of the extrinsic ocular muscles indicate extension towards the third ventricle where we would expect pressure to bring about papilledema.

Hypophyseal tumors are readily diagnosed when they grow upward and press the chiasm. They are diagnosed early either by the bitemporal field defects caused by pressure on the chiasm. Perhaps as a result of a backward rather than an upward growth of the tumor typical visual defects were not present in Dr. Baker's case. It is unfortunate that the roentgen-ray did not give greater assistance in this case. The enlarged sella or the absence of the clinoid processes would have lead at once to the suspicion of hypophyseal gland involvement.

Dr. Spurling placed considerable stress upon the absence of headache. I think it is rather remarkable that an intracranial growth of this size could exist, without producing pain in the head. The obesity and retarded menstrual function were corroborative symptoms of considerable importance.

Dr. Baker's case is an extremely interesting one and we are indebted to him for presenting it and to Dr. Spurling for his enlightening remarks.

Samuel G. Dabney, Louisville: I saw the patient at the request of Dr. Trawick and with the knowledge of Dr. Baker. I first want to say a word or two about Dr. Pfingst's last remark. I may have misundertood him. He said we might have expected papilledema or optic neuritis in this case. I believe in most cases of pituitary disease we do not see either papilledema or optic neuritis. There is generally atrophy of the optic nerve from pressure. There is also paralysis of some of the external ocular muscles.

When I examined this girl she had typical paralysis of the left motor oculi; her vision on that side was 20-30; she had some restriction of the visual field on the same side. I believed then it was probably a case of pituitary disease and wrote her physician to that effect. It is to be regretted that the patient did not reach the hands of the surgeon earlier. The delay was in some measure due to the unfortunate result of the roentgen-ray examination. Her symptoms were very suggestive of pituitary tumor, and the fact that she had never menstruated was very sinificant to me. Her gain in weight of forty or fifty pounds was also suggestive.

The symptoms in tumors of the brain are not always typical by any means. I have had an opportunity of examining quite a number of these patients. In the presence of paralysis of the external ocular muscles, optic nerve atrophy and dilated pupil, we are justified in suspecting disease within the skull. However, all these symptoms may be produced by lesions which do not involve the intracranial structures.

A physician from Tennessee consulted me several years ago. He had all three of the symptoms I have just enumerated; paralysis of the external rectus, dilated pupil and beginning optic atrophy on that side. He was informed that the symptoms were suggestive of brain tumor and a roentgen-ray examination should be made. This was done and the report was negative. The patient was kept under observation, and to make a long story short the lesion proved to be a tumor of the orbit. This was removed and unfortunately the eye had to be sacrificed. I had a letter from him less than six months ago saying he was perfectly well and was able to perform his professional duties with one eye.

The first case of enlarged pituitary I ever saw occurred in a young man with negative history. When he came to me he was blind in one eye and had only a partial field of vision in the other. After carefully studying the case I made the diagnosis of enlarged pituitary and the patient was later operated upon by Dr. Cushing with satisfactory results. That was a number of years ago. The patient died years afterward but I was never able to ascertain the cause of death.

I have seen several similar cases since then, but none of them proved more interesting than the one under discussion, and I am glad to have heard Dr. Baker's report.

M. C. Baker, Louisville (in closing): I appreciate the discussion very much. As to the question of diagnosis in the case reported: some of the symptoms were quite typical and others were decided atypical. Had Dr. Spurling seen the patient when I first saw her several years ago he might have made the diagnosis at that time. One reason for the delay in diagnosis was that some of the symptoms were late in appearing. Central vision remained normal until about the time Dr. Dabney saw the patient. Her vision in the left eye was then 20-30. The fields of vision showed no defects until about two months before Dr. Dabney saw the patient, and even at that time there was no restriction of the field of vision on the right side. As Dr. Pfingst has said, there was no choked disc in this case, and optic atrophy did not appear until about a year ago.

Based on the few symptoms present, some of which were very atypical, I do not believe we should be severely blamed for not making the diagnosis earlier.

MASTOIDITIS IN INFANTS.*

By A. M. Alden, M. D., St. Louis, Mo.

It is now more than one hundred and seventy years since a Frenchman, Jean Louis Petit, performed the first mastoid operation. Sixteen years later a Prussian army surgeon, Jasser, entirely independently of Petit's work, performed the same operation upon a soldier and secured a satisfactory result. The indications for the operation were imperfectly understood and it was heralded as a cure-all for deafness, tinnitus and aural discharge. For a few years it was frequently done with a view to curing these symptoms. The results naturally were poor, and the mortality very high, consequently as a surgical procedure, it was generally discredited and fell into the discard.

It was not until 1873 that this operation was revived by Schwartze who laid down definite indications for its use and an exact technique for its performance. Since then our information concerning the infections of the temporal bone, has progressed by leaps and bounds, until at the present time, we have a fairly adequate comprehension of the pathologic mechanism acting in the suppurative processes involving this structure. Unfortunately most of this investigative work has been carried out upon the adult or practically adult temporal bone and very little attention directed to the same disease processes as they occur in the small child.

The relative frequency of otitis media in the infant as compared with the adult has been noted and commented upon since the beginning of medical observation. The first, however, to note the frequent coexistence in the same baby of otitis media and gastro intestinal disease, was Hartmann, who is 1898 stated that he felt that the gastro intestinal symptoms were the result of the absorption of toxic products from the diseased ears. Preysing, in 1904 notes this same combination in small children and says that the gastro intestinal symptoms were often favorably effected by incision of the ear drums. In 1921, Maurice Renaud in the Bulletins et Memoires de la Societe des Hospiteaux de Paris reported on seventy autopsies conducted upon infants who had died of cholera infantum. Without exception these babies showed very little pahologic change in the gastro intestinal tract but all showed more or less extensive inflammatory involvement of the mastoids. Thirty of these cases had been diagnosed as otitis media before death. The other forty had been missed. In an effort to save some of these babies, mastoid operations were done on ten babies in extremis. Nine died ,one made a splendid recovery.

In reviewing the histories of fifty-eight cases of athrepsia and anhydremia occurring at the St. Louis Children Hospital prior to September, 1924, it was found that fifty-one or eighty-seven per cent had otitis media, and the remaining seven cases had other forms of infection. Sixty-one per cent of these babies died.

In an effort to determine what percentage of babies with gastro intestinal disease had an accompanying ear infection, we started making daily ear examinations of all babies suffering with diarrhea, vomiting or anhydremia that was not definitely the result of food intoxication or intestinal infection. We found at once that for this purpose the head mirror and reflected light was insufficient to properly illuminate the tiny fundus of an infant's ear canal. Accordingly the electric otoscope with brilliant illumination and some magnification was adopted as the standard instrument for this examination.

Careful daily examination of these babies ears demonstrated almost immediately that many of them were the seat of acute or chronic suppurative processes without manifesting any of the so-called classic signs of otitis media or mastoiditis. That is, a red or bulging drum; or redness, swelling or subperiosteal abscess behind the ear. Many of these babies with unexplained fever, vomiting or diarrhea or all three, exhibited ear drums that were dirty grey or yellowish in color, without any redness or bulging being evident and incision of such drums invariably revealed a middle ear filled with muco purulent secretion.

Alexander in his Ohrenheilkunde in Kindesalter states that the reason why the ear drum of an infant does not readily rupture in the presence of a secretion filled middle ear, is because it is relatively thicker and more resistent than that of the adult. My own experience would lead me to doubt this statement. I believe that the failure of the infant's drum to rupture is more often due to the release of pressure in the evacuation of the purulent contents of the middle ear by way of the eustachian tube . This observation has some confirmation in the fact that, by means of the nasopharyngoscope, a stream of pus flowing from the pharyngeal orifice of the tube has been observed in several babies whose ear drums were intact, showed no bulge or redness, and in which incision revealed free pus in the tympanic cavity.

There are certain anatomical differences in the infantile temporal bone as compared with that of the adult that have a distinct bearing upon the mechanism of otitis media and mastoid infections occurring in babies. The eustachian tube of the infant is relatively shorter, more horizontal in position and larger in lumen than that of the adult. The body external auditory canal of the infant is very short or absent and the angle made between the upper portion of the tympanic membrane and the superior wall of the canal is much less prominent than in the adult. In the infant, the upper half of the tympanic cavity, the attic and the aditus ad antrum is more or less completely filled with folds of embryonal mucus membrane.

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*Read by invitation before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928. Illustrated by lantern slides.

In the presence of infection, this primitive mucosa is subject to rapid swelling and disintegration so that walling off of the mastoid antrum from the middle ear is the rule and explains why attic suppurations are much more common in infants than in adults. The incomplete ossification of the temporal bone of the infant and its relatively abundant lymph and blood supply readily permits of the absorption of toxic products into the general circulation.

Kopetzky recognizes two general types of mastoid infection. One, the coalescent type in which the local spread of the infection takes place by direct contiguity and in which the symptoms and pathology are largely the results of pressure. In the other, the hemorrhagic type of the disease the distribution of the infective agent is by way of the local blood and lymph vessels and the symptoms are the result of absorption. Each of these types of mastoid disease has its analogue in the baby. Prior to three years ago, the diagnosis of a surgical mastoiditis in an infant was rarely made except upon the basis of external signs, namely, redness, swelling or subperiosteal abscess. We now know that an infant may have a very dangerous type of mastoid infection, capable of producing profound constitutional symptoms and even death without any of the external signs being present.

Based upon the pathological picture, we have classified mastoid infections in infants into two general groups. The classic type of the disease represented by the mastoid abscess with its subperiosteal infiltration, external rupture and prompt subsidence of constitutional symptoms following this phenomenon is designated as the coalescent type. In the other form of the disease, as a rule none of the external signs are manifest. However, an examination of the tympanic membrane will always show a deviation from the normal, in color and lustre ,and a bulge may or may not be present. A sag of the superior or posterior-superior canal wall external to the drum, is pathogonomonic of this form of the infection. Here the most pronounced symptoms are fever, vomiting and diarrhea with the consequent anhydremia which is the result of dehydration. We recognize however one sub class in this form of the disease where the gastro intestinal symptoms are less marked and where the child becomes gradually athreptic rather than anhydremic.

The diagnosis of the coalescent type of mastoid infection rarely presents any difficulties, because to the trained observer the patient with the displaced ear, boggy swelling over the mastoid and a history of an otitis media of several days standing, presents a picture that is unmistakable. The otologic picture presented by the other form of the disease is not so manifest, but the disease when present is never without definite otologic findings.

When in the presence of this syndrome of diarrhea, vomiting or temperature, or all of them, that cannot be explained as the result of improper feeding or intestinal infection we find ear drums that are abnormal in color or position, we feel that myrinogotomy is indicated and our results have more than justified this conclusion. The incision of the ear drums in such a case is almost invariably followed by a remission of the fever and gastro intestinal symptoms, and if there is no block in the attic which prevents drainage of the mastoid antrum through the incision in the ear drum this is usually all that is required to produce a permanent cure. These incisions are often difficult to keep open and may require daily probing to maintain their patency.

The pediatric treatment of this latter type of case is very important and consists of supporative therapy in the nature of fluids, Ringer's solution and transfusions. For this latter purpose, we have found that whole blood is much superior to citrated blood and at the present time, the whole blood method is the routine of transfusion at the St. Louis Childrens Hospital. Inasmuch as many of these cases present not only an ear infection, but a nasopharyngitis with profuse purulent secretion, treatment of this condition is also necessary.

Only when in spite of adequate drainage through the ear drum and all supportive therapy, the condition of the child as shown by the weight and fever curves becomes progressively worse, do we feel that external drainage of the mastoid antra must be done. Earlier in our work we were reluctant to operate upon these babies until they were almost moribund and I am sure, that many of our early fatalities could have been prevented had these cases been operated before disaster was imminent.

The otologic signs upon which the diagnosis of this non-coalescent type of mastoiditis in the baby is based are, profuse discharge from the ear, culture of which usually reveals some form of the streptococcus, and a sag in the superior wall of the external auditory canal which may in some cases amount to a narrowing of the canal until it assumes the appearance of a horizontal slit. These signs coupled with persistent high temperature and continued weight loss in spite of all supportive therapy make a diagnosis of mastoid infection practically certain. So far in our hands the x-ray has given us little assistance. We are however working upon a technique which we hope will give more satisfactory results and which we shall report upon a later date. The infection in the greater majority of these cases has been bilateral and in many of our cases where a one-sided operation was done, it was necessary to do the other side before a complete cure was effected.

The drainage of an infant's mastoid antrum is in no sense of the word a formidable procedure and in our complete series of cases, many of whom went to the operating table in an almost dying condition we have yet to lose a patient upon the table or immediately afterward as the result of the operative procedure.

When it is determined that mastoid antrotomy is indicated, the sooner that it is done, the better will be the prognosis for the little patient, because these babies often pass from a very fair to an almost dying condition in a few hours. The preoperative preparation consists in loading the infant as much as possible with fluids, administered usually into the superior longitudinal sinus and a slight opiate, usually ,a sixteenth to a twelfth of a grain of codeine administered hypodermatically . It is a well known fact that the infant loses its residual body heat easily, so the most important consideration in the prevention of shock, is to keep these babies warm while they are on the table. For this purpose, we use a large flat perforated instrument tray under which is placed three rubber bottles filled with warm water. The tray is covered with a blanket and the baby placed upon the blanket and the baby, tray and table covered with another blanket, only the head being exposed.

In our hands, all the operations have been carried out under local anesthesia. For this purpose, 1-2 per cent novocaine with ten drops of one to one thousand adrenalin to the ounce has been used with very satisfactory results. The skin over the mastoid and the periosteum covering the mastoid antrum is thoroughly infiltrated. The incision required is usually one and one-half to two cm. in length. The only landmark which it is necessary to see is the posterior-superior margin of the external auditory canal or the posterior-superior margin of the annulus. The infantile mastoid antrum lies just behind and above this point. After the periosteum is elevated, the cortex is removed by a rotary motion of an eight mm. Alexander gouge. This usually completely unroofs the tiny mastoid antrum. All overhanging edges are removed with forceps and the granulations gently wiped or curetted from the mastoid cell. The curette should never be passed forward into the aditus or attic on account of the danger of tearing or displacing the ossicular attachments. When the operation is finished, the antrum is lightly packed with a gauze drain and no attempts at surgical closure of the edges of the incision made.

The first dressing is usually changed on the second day after operation and from that time until the wounds are healed, daily dressings should be the rule. Sterile dressing technique is very important because in those cases which become secondarily infected, the convalescence is as a rule prolonged and stormy. The gauze drain should be kept in place until inspection of the ear shows the tympanic membrane to be closed or the perforation if patent, dry.

Some of my confreres prefer small rubber drains but my own experience has been that the gauze apparently promotes more rapid granulation and healing of the cavity. In those cases which show an obstructive mass of adenoids or a nasopharyngitis which does not yield readily to treatment, an adenoidectomy performed before the child leaves the hospital will probably help to prevent recurrence.

Case Charts.

In two and one-half years experience with these cases we have learned many things. At first, cases were operated upon only when disaster threatened. Of the first seventeen cases which came to operation, we were able to save nine. Realizing that some of the cases which died could probably have been saved had they been operated earlier, we became somewhat bolder and of the next nine cases, only three died. In the next series of forty cases, we saved all but five, two dying of pneumonia, one of meningtiis, one of athrepsia and one of septicaemia.

When we first presented this work in the spring of 1925, it was received with some skepticism on the part of both the pediatric and otologic professions. Objections were made that the procedure which we advocated was radical, that it was not good otology, and that it would probably lead to much indiscriminate and unwarranted surgery upon babies. As to the first criticism, a life saving measure is never radical. I am sure that you will all agree that I have said nothing tonight that contradicts any of the time honored precepts of our otologic forefathers. We are simply advocating for the infant the same type and standard of otologic diagnosis and surgery that the adult is receiving at the hands of our ablest otologists. We have laid down certain fairly definite indications which if followed should not lead to indiscriminate or unwarranted surgery upon babies.

To sum up, this is a type of work in which the best results can be obtained by neither the pediatrician nor the otologist working independently of each other.

As it stands today it is the product of a very splendid cooperative effort on the part of both the pediatric and otologic services of the St. Louis Children Hospital. During the past two years we have had the privilege of having many of America's foremost Otologists and Pediatricians visit us and actually see our babies both before and after our method of treatment. Many of these have gone back to their own homes and because they looked for these cases, have found them. Their experiences in every way coincided with and corroborated our own observations and I am sure that today many more of these cases are being seen elsewhere in America than we are seeing in Saint Louis.

THE RELATION OF EYE DISEASES TO DISEASES OF THE NASAL ACCESSORY SINUSES.*

By Milus L. Gunn, M. D., F. A. C. S.,
Harlan.

That the intimate anatomic relations existing between the nasal accessory sinuses and the orbital contents has caused many eye complications, has long been well known, but only in the last few years has there been much interest centered in untoward eye and orbital conditions that are traceable to ectasia and inflammations of these cavities. The importance of this relation may be judged by the great length of time consumed in clinical discussions of it today, and the more general attention of the ophthalmologist to the examination of sinuses in his work.

Every case in ophthalmic practice, where there is the least suspicion that inflammation of one or more of the sinuses is present, should be studied very carefully and records kept of the treatments and findings. Due to the increased interest in these cases and as a sequence, examination into the condition of the sinuses is made more frequently than heretofore, with the result of a surprising number of more eye diseases found traceable to them on this account.

We might ask then, what are the eye conditions that should prompt us to examine the accessory sinuses of the nose?

(1) A monocular exophthalmos.
(2) A monocular rapid loss of vision.
(3) A monocular choked disc.
(4) A monocular edema of the lids associated with severest headaches.
(5) Central scotoma.
(6) Enlargement of the blind spot.
(7) Asthenopic symptoms where the eye conditions are not found responsible.

When any one of the above seven conditions exist, an examination of the sinuses of the nose becomes imperative with the idea of excluding them as a causative factor.

According to most authorities, the most pronounced symptom of orbital inflammation or orbital encrouchment, is exophthalmos. Statistics tell us that a very large percentage of the inflammatory, that is orbital cellulitis, is traceable to sinusitis, and the mortality in these cases is very high. The sinuses responsible for exophthalmos in point of frequency are the frontal, anterior ethmoidal and maxillary, and it is an easy matter to place the finger on the ones involved by the character of the displacement of the globe. In frontal sinus ectasias, the globe is pressed forward, downward and outward. Anterior ethmoidal involvement displaces it forward and outward. Maxillary forward and upward.

The next most frequent eye condition in which the sinuses may be blamed, is the rapid failing of vision in one eye without observable fundus changes, but there exists a central scotoma, and again in other cases are found inflammation of the optic nerve and retina, also thromboses. The sinuses that are most likely responsible are located along the optic canal and in intimate relation with the nerve itself, the sphenoid and posterior ethmoids. Inflammations of these sinuses are seldom responsible for exophthalmos.

Monocular choked disc varying from a blurring of the margin of the disc at the entrance of the vessels to a measureable elevation of the edema, may be seen in orbital inflammations and encroachments depending upon the pressure applied upon the optic nerve sheath.

Asthenopic symptoms, when the error of refraction, extrinsic muscular imbalance, inflammations of the eye or adnexa are excluded as a cause, the accessory sinuses should be examined and occasionally may be found responsible.

In an article read before the New England Otological and Laryngological Society at Boston in 1916, Dr. Leon E. White states that the increased pressure from the inflammation within the accessory sinuses causes a restriction of the visual field. At first the loss of vision is usually for colors, but if the case progresses, there may be eventually entire loss of sight. Enlargement of the blind spot or peripapillary scotoma is, according to Dr. J. Von der Hoeve (among many other authorities), a most valuable and early symptom of optic neuritis from diseases of the posterior accessory sinuses.

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*Read by invitation before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

De Kleyn investigated this symptom in 52 cases of posterior accessory sinus disease and found it present 47 times, while in a large number of cases with frontal or antrum disease, he found the blind spot normal.

In fact, the presence of an enlarged blind spot enabled De Kleyn in several cases to make a diagnosis of posterior accessory sinus disease which he verified by operation.

"Enlargement of the blind spot for white and color points," says J. Von der Hoeve, "with great probability due to diseases of the posterior nasal accessory sinuses and justifies operative interference for this disease if there are no other causes for its presence." "Early treatment can cure the optic nerve affection."

In conclusion, I will say that the early recognition of inflammations of the accessory sinuses of the nose as a causative factor in orbital inflammations and encroachments, and the proper treatment administered, may prevent many a case of monocular blindness, and in some instances loss of life.

Case Reports.

Miss I. O. J., aged 23, stenographer, came to my office on August 19, 1926, complaining of very severe pain over her left eye and disturbances of vision of the left eye. The pain started during the last winter, following an acute coryza. At that time she had considerable pain which lasted about ten days and then entirely disappeared.

About two weeks later the pain returned and has continued almost daily since. For the past month she has noticed that her vision has been very materially reduced in the left eye. Two or three times the pain became so severe as to require an opiate to relieve her. Examination of the patient showed that she was very anemic. Vision of the right eye was 20-20 and of the left eye 20-70. Examination of the fundi was negative. There was a slight enlargement of the blind spot. The bulbar conjunctiva of the left eye was slightly congested. Vision was not improved by lenses.

Examination of the nose showed a rather thick and congested mucous membrane and a very large, boggy left middle turbinate, which was pressing on the lateral wall and septum. There was no secretion present. On suction, however, a small amount of thin purulent secretion appeared in the left middle meatus. X-ray examination showed increased density of the left ethmoids.

This girl received daily treatments, which consisted of suction and irrigations, which failed to relieve her headaches, and her vision became less acute. On August 29th vision was 20-200 with marked enlargement of the blind spot. On August 30th she submitted to operation and the anterior and posterior ethmoids were exenterated.

Headache was gone by the next day and vision had improved to 20-100. Vision on September 4th was 20-50. She made an uneventful recovery and was dismissed from my care on September 20th with normal vision.

Mrs. H. P., aged 38, white, housewife, was referred to me on March 12, 1926, complaining of severe frontal headaches and visual disturbances. She stated that the headache started three weeks previously, the pain coming on about two p. m. and lasting until bed time and at times became almost unbearable. Her vision at that time was 20-50, which was not improved by lenses. Fundus examination was negative. There was a small central acotoma for white and color points.

Examination of the nose showed a congestion of the left middle turbinate and a slight mucopurulent secretion filling the middle meatus. Transillumination was negative. X-ray examination showed very marked increased density of the left anterior and posterior ethmoids and sphenoid.

This patient received daily treatments with slight improvement in the headaches, but on March 25th vision of the left eye had been reduced to 20-200. At that time an operation was advised and on March 26th the left anterior and posterior ethmoids were completely obliterated, and the sphenoid opened. She made an uneventful recovery with complete relief from headaches in thirty-six hours following operation and on April 5th her vision was 20-30, which was improved to 20-20 with a plus fifty cylinder at axis 180.

Mrs. E. C., aged 28, white,, housewife, was referred to me on December 6, 1927, with a very marked exophthalmos and marked edema of both lids of the right eye. Temperature was 103°F., and she was suffering intensely. She stated she had had an upper tooth extracted three weeks previously and that she had had pain over her cheek and eye ever since, but her eye began to bulge only three days ago. Vision of her right eye was 20-100 and of the left eye 20-20. The right pupil was about one-half dilated, and there was a central scotoma for white and colors.

The left sinuses all transilluminated, while the right ones did not. Xray examination showed a right pansinusitis.

She was admitted to the hospital immediately and a radical frontal operation done The frontal sinus was very large and entirely filled with thick creamy pus and granulation tissue. The bone was healthy. The antrum was punctured and pus spurted out of the anterior nares. A large window was cut in the naso-antral wall . At this time the patient "went bad" under the anesthetic and the operation was discontinued.

On December 20th a complete submucous resection was done, the ethmoids obliterated and the sphenoid opened which was found to be filled with pus.

This lady made an uneventful recovery and was discharged from my care March 5, 1928. Her vision was 20-20 in each eye.

F. D. H., aged 26, white, male, came to my office on February 20, 1928, with very marked exophthalmos, displacement being downward and outward. Vision was 20-200.

This boy was kicked by a mule over the right eye fifteen years ago, which left a very deep scar extending from the outer margin of the eyebrow to the base of the nose, almost completely destroying the right frontal sinus.

He started having severe pain in the left eye three weeks ago and it had gradually gotten worse and his eye had been bulging a little more each day. There was no redness or tenderness and temperature was normal. As there was no apparent pathology in the nose, a tentative diagnosis of sarcoma of the orbit was made. X-ray examination showed a very small right frontal. The left frontal was very large wtih increased density and the orbital plate bulging downward. All other sinuses were clear.

This boy was sent to the hospital immediately for an exploratory operation. A Killian incision was made and upon opening the periosteum, thin, yellow pus escaped. The frontal plate was found to be necrosed for a considerable area. The orbital plate was likewise necrosed and an abscess cavity was found extending posterior to the optic nerve, which was plainly visible. All diseased bone was removed, the floor of the frontal sinus was likewise removed and a large rubber tube inserted through the nose for drainage.

The following day the patient stated that his vision was very much improved. He was discharged from the hospital in ten days following the operation, with vision of 20-50. At this time he is well and has normal vision.

Fracture of the Surgical Neck of the Scapula. —Fractures of the surgical neck of the scapula are more frequent than is generally believed. In contusions of the shoulder, no matter what the intensity of the symptoms, the shoulder should be examined radiographically to determine the presence or absence of bone injury. With proper treatment, healing is the rule, provided there is no injury of the nerves or important vessels. The most frequent complications are arthritis and periarthritis, with decreased function of the scapulohumeral joint.

INTERPRETATION OF ALTERATIONS IN THE VISUAL FIELD.*

By M. J. Stern, M. D., Paris,.

In attempting to classify the defects that may be found in visual field tests, one will be impressed with the many different manifestations that a single condition may produce. Then, too, while there is agreement among different observers in some conditions, there is considerable discord in others. It will probably never fall to any one's lot to see every condition that has been described, and so it is necessary to depend largely upon the observations of others.

No claim for originality is made for the descriptions to follow, unless it is for method of presentation. Numerous works upon perimetry—and good ones, too,—are to be had. All that we have seen, present the disease condition, and give the perimetric signs commonly found. It was felt that a list of defects in the field with the causes of each would be helpful. This list was made for use in the office, and the following description is an elaboration of it. There are, no doubt, many omissions and possibly some mistakes, and the chief object is to elicit enough discussion to bring out these errors.

We will conider the defects separately.

First. Contraction of the Visual Field.

(A) *Concentric Contraction.*

This condition is found in:

(1) Optic Atrophy, Tabetic or Post Neuritic, with the color fields showing disproportionately greater loss.

(2) Glaucoma, occasionally, with the color fields altered in normal ratio.

(3) Retinitis Pigmentosa (and Retinitis Puntata albescens with abnormally greater contraction in reduced illumination and ophthalmological evidence.

(4) Optic neuritis—here the disc is seen to be swollen.

(5) Toxic Amblopia from certain poisons such as quinin, salicylic acid, etc. In these cases, the retinal blood vessels are generally contracted.

(6) Peri Neuritis—A rare condition described by Willbrand and Saenger which resembles Tabetic Atrophy, but tends to recovery.

(7) Hysteria—the so-called tubular field in which the field is often the same size, when tested at different distances, that is, much smaller in degrees at the larger distance.

(B) Nasal Contraction of the Field, often associated with the nasal step, characteristic of glaucoma, and possibly optic neuritis in both cases from pressure on the nerve fibres at the disc margin.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

(C) Slit-like Field—This is generally a horizontal oval, more often irregular, and is found in:

(1) Glaucoma, and in the recovering stage of

(2) Toxic amblyopias due to quinin and similar poisons.

(3) Rarely in embolism of central retinal artery when a cilio-retinal artery is present, which supplies the centro-coecal zone. This leaves only a small horizontal oval field from the fixation area extending outward toward the blind spot.

(D) Irregular Contractions are found in various diseases, but is, by its nature, not typical of any, but is found in

(1) Various forms of retinitis, especially syphilitic.

(2) Papilitis.

(3) This form of field has been described as a result of multiple sclerosis, but is surely not typical.

(E) Spiral or Exhaustive Field.

This is where the line joining the points where the object is seen winds around in a spiral, getting progressively smaller, and is evidently due to failure of response from exhaustion. This is found in functional nervous disorders, especially neurasthenia.

(F) Reversal of Color Fields.

This is found in:

(1) Hysteria—especially if interlacing of colors.

(2) In increased intracranial pressure, according to Cushing and Bordley.

(3) In the early stages of detachment of the retina in the corresponding area of the field.

(G) Sector Defects.

This is type of contracted field, in which the visual loss is mainly wedge-shaped, except in the hemianopic quadrant type, they rarely follow exact lines. Sector defects may involve different parts of the field of vision, such as

(1) Upper part.

This is suggestive of:

(A) Coloboma of Choriord and

(B) Detachment of Retina. In both of these, the condition is easily seen by ophthalmoscope.

(2) Nasal Sector.

(A) Glaucoma is our first thought here.

(3) Upper outer quadrant or the so-called "temporal slants" is often the first signs of chiasmal interference.

(4) Any Sector. This is caused by:

(A) Embolism of a branch of central retinal artery. This, of course, affects the opposite sector, where, for instance, the inferior temporal branch is obstructed, the upper nasal sector will show defective.

(B) Atrophy of optic nerve. Here there will also be some depression in the other parts of the field, with characteristic early color loss.

(C) Chorioditis Juxta-papillars, as described by Jensen.

We now come to scotoma. This is an area in the field of vision, within the confines of which objects are less clearly seen or not at all visible. In the former case, it is relative; in the latter, absolute. Scotomata are classified as positive or negative. The positive are noticed by the patient as a dark spot which covers some part of the object viewed. The negative are found only by testing. Positive scotomata are generally found anterior to the layer of rods and cones. Scotomata are located in various parts of the field such as

(A) Central.

These are the most disturbing to the patient. They occur in:

(1) Pre-retinal hemorrhage—when centrally located.

(2) Retinal injuries, including photo-traumatism, of which "eclipse blindness" is quite common.

(3) Central Retinitis and Regenerations.

Kollner has called attention to the presence of a relative central scotoma for blue in beginning albuminuric retinitis. Senile macular degeneration is a quite common cause. These defects are easily seen ophthalmoscopically.

(4) Tabetic atrophy of the optic nerve, Uhthoff, Fuchs, and other observers find central scotoma in from two to four per cent of cases with peripheral depression. It must surely be rather rare, and is very possible an added defect due to some other cause.

(5) Hereditary optic atrophy or Lebers disease. In this condition, the scotomata are rather large—fifteen to forty degrees in size—are bilateral; the disease occurs mostly in young males, is hereditary, and tends toward recovery, though seldom quite attaining it.

(6) Toxic amblyopia, especially from tobacco, either alone or with alcohol, less frequently from lead, iodoform, and other poisons. Here the scotomata are quite characteristic—are ovoid in shape—really centro-coecal rather than strictly central, extending from the blind spot to the central area. The average size as determined by Sachs and also by DeSchweinitz is: outward 18°, inward 3 to 5°, upward 7°, and downward 6°. It is relative at first for red and green later becoming absolute. They are bilateral in practically all cases, though not necessarily beginning in both eyes at the same time.

Traquair states that toxic optic nerve involvement in alcohol, especially methy-alcohol, is more peri-central than tobacco; from the toxin of diabetes is central or centro-coecal, and from carbon bisulphid poisoning will also show some peripheral depression. In toxic amblyopia, the scotoma for blue is smaller than for red, as contrasted with retrobulbar neuritis, in which they are practically equal.

(7) Retrobulbar optic neuritis—produces a central, though possibly para-central or annular scotoma, rarely with irregular contraction of the peripheral field. The scotoma is usually circular or oval, sometimes irregular, with steep edges, is unilateral, the blue and the red are about equal. They are generally rather large—about 10 to 20° in diameter. Retrobulbar neuritis is caused most frequently by syphilis, multiple sclerosis, infections from teeth, sinuses, etc.

(8) Bitemporal hemianopic scotomata, with their inner edges coinciding with the vertical meridians, and generally including the blind spots, are found in the early stage of chiasmal interference.

(9) Homonymous hemianopic scotomata are indicative of tract or cortical lesions. If small and sudden in onset, it is suggestive of an occipital cortex lesion.

(B) ENLARGEMENT OF THE BLIND SPOT—also called peri-papilary, or peri-coecal scotoma, is caused by:

(1) Glaucoma—generally with other evidences in the field of vision.

(2) Medullated nerve fibres.

(3) Plerocephalic edema or choked disc.

(4) Sympathetic inflammation. Ramsay and Sutherland reported a series of cases in which there was a spindle shaped enlargement of the blind spot in a vertical direction, the vertical diameter often reaching as much as eighteen degrees, the horizontal from four to six degrees. This was confirmed by Arthur Sinclair. If this is really a dependable sign, it will furnish very valuable information that may save an otherwise doomed eye.

(5) The myopic crescent will cause a peri-coecal scotoma.

(6) Sinusitis, as first described by Van der Hoevre.

(C) PARA-CENTRAL scotomata are those located near, or overlapping the central zone, but mainly to one side. These are due to:

(1) Retinal injuries and diseases.

(2) Glaucoma—The characteristic field change of this disease is a para-central scotoma, arcuate or comet shape, extending toward or to the blind spot and terminating in a straight horizontal line at the nasal side—the nasal step of Roenne. It is due to pressure on the nerve fibre bundles at the disc margin.

(3) Optic neuritis gives a similar picture, but is generally not so typical.

(4) Disseminated Choriorditis produces numerous para-central as well as peripheral scotomata. The ophthalmoscope shows the cause.

(5) Retrobulbar optic neuritis sometimes causes this type of scotoma, though it is not typical.

(D) ANNULAR OR RING SCOTOMA. This is found in:

(1) Glaucoma—by a union of two arcuate defects described previously. It lies, like its component parts, within the ten to twenty degree circles.

(2) Retinitis Pigmentosa—Most authors say that this is always present as an early sign. It generally lies in the twenty to forty degree circles.

(3) Malnutrition with hemeralopia.

(4) Syphilitic retinitis.

(5) Functional disorders.

(E) PERIPHERAL SCOTOMATA—are often overlooked. Have not been well studied and no particular significance can be attached, unless some other feature is found in the field, or a reason is found in the fundus.

HEMIANOPIC DEFECTS.

These form a most interesting study, and are of great value in intracranial localization. Several types are noted.

(A) BITEMPORAL HEMIANOPIA.

This is best known as a manifestation of pressure on the chiasm from pituitary tumors, but may be due to pressure from any other cause, such as gumma, brain tumor, and dilatation of the third ventricle; also from injury. Or it may occur from a tumor between the two optic nerves just in front of the chiasm, which presses on both nerves. Bitemporal hemianopias are seldom identical in the two fields. They generally begin in the upper outer quadrant—the so-called "temporal slants," and extend next into the inferior temporal quadrant, then into the inferior nasal quadrant, and lastly into the superior nasal one. Scotomata are often present from the beginning, and show the bitemporal features, as previously described, as well as the same order of involvement of the four quadrants. Partial bitemporal hemianopia of from five to twenty degrees has been found by Carver in eighty three out of eighty eight cases of pregnancy.

(B) ALTITUDINAL HEMIANOPIAS are rare conditions, and we are seldom able to locate a lesion from this sign alone. An inferior altitudinal hemianopia has been described from a subchiasmal tumor forcing the nerves upward against the circle of Willis and injuring the upper fibres.

(C) BI-NASAL HEMIANOPIA.

(1) This is an unusual form, and is never

complete. Weeks describes a partial binasal heminapolia from pressure of atheromatous internal carotid arteries on the outer sides of the nerves.

(2) One should be on the watch for a bilateral glaucoma, which would simulate a binasal hemianopia.

(3) Binasal hemianopia was found in from five to fifteen per cent of cases of brain tumor, in a series of three hundred cases, described by Cushing and Walker (American Encyclopedia of Ophthalmology and suggests as a rule, a distant lesion, often cerebellar with secondary hydrocephalus. This distention crowds the optic nerves downward and outward against the carotid arteries, which indents the outer aspect of the nerves. Uhthoff describes a case which confirms these observations.

(D) HOMONYMOUS HEMIANOPIA is an involvement of the corresponding portions of the two fields—the temporal side of one, and the nasal side of the other. It indicates a lesion bewteen the chiasm and the occipatal cortex. The localizing signs are to be considered with evidences of other cranial nerve disturbances. If the field defects are super-impossable, or identical, it is a congruous defect. If not, it is incongruous.

Incongruity indicates interference in the lower part of the tract—a sub-geniculate lesion. The onset is usually gradual, and the defect is often relative, incomplete and progressive. This location is suggested if the fixation area is divided, if there are central hemianopic scotomata or if the previously good portion of the field later becomes involved.

Congruity indicates a supra-geniculate lesion. These are more often vascular in nature and sudden in onset—thrombosis, embolism, or hemorrhage. If the defect is relative and occurs suddenly, it indicates impaired nutrition from hemorrhage near the tract or an angiospasm. If the onset is gradual, there is a tumor or abscess. Supra-geniculate lesions are further indicated, if the fixation area is spared. This is the site of trouble, if sudden and complete, or if sudden and incomplete, unless incongruous.

Sensoro-motor symptoms with homonymous heminaopia indicate involvement of the internal capsule.

The Wernicke pupillary reaction, if present, indicates a supra-geniculate lesion; if absent, a lesion between the chiasm and the geniculate body. It is difficult to elicit with certainty.

Lesion in the cortical area—like those in the optic nerve—are less likely to show other localizing signs.

In conclusion, the hope that has prompted these remarks is to stimulate an interest in field testing, a study that is one of our most valuable methods of diagnosis, though one so often neglected entirely, or so hurriedly performed as to yield doubtful results, or even to lead to erroneous conclusions.

The methods employed have been omitted intentionally. They do not come within the limits of this title, and would require too much time. However, to be of value they should be exact; several tests should be made with different sizes of objects in white and colors. The peripheral field is best tested with a perimeter, the central field on a Bjerrum screen or some modification of it.

DISCUSSION.

Samuel G. Dabney, Louisville: I have listened with great interest to both of the papers that have just been read. I told Dr. Gunn when I saw the title of his paper that I could add very little. But all of us have seen some of the diseases to which he refers.

As to the method of examination. How do you measure the blind spot ? I use the perimeter, yet I am not entirely satisfied with it. We now appreciate more fully the importance of the blind spot in retro bulbar neuritis than we formerly did.

Speaking of the divisions in Dr. Gunn's paper. He mentioned first monocular exophthalmos. I suppose when we see a case of that kind that has existed for a few weeks or longer, that is without pain or any unusual symptoms except those referring to the eye itself, our first impression would be tumor of the orbit. On the other hand exophthalmos preceded or accompanied by pain in the orbit and above it, with a history of nasal obstruction and possibly pus discharge on that side, our guess would be orbital cellulitis originating in a lesion of the nose. Usually one of these diagnoses is correct. Occasionally the eye may be pushed forward from other causes.

I was surprised to hear Dr. Gunn speak of a high mortality. I hardly thought the mortality from orbital cellulitis would be great. In many instances, however, there is rapid loss of vision and the patient may finally lose the sight of the eye. One of the causes of retrobulbar neuritis, I think, is unquestionably infection of the posterior nasal sinuses. There is some doubt as to the frequency with which this occurs. Some men of large experience are still skeptical about this, some of them who formerly stated post nasal infection was responsible for eighty per cent of cases now claim only fifteen per cent. Foster Moore in his latest text book of medical ophthalmology says he is not sure that he has ever seen a case of ocular disease due to the nasal sinuses. Such a statement from a man like Foster Moore makes us pause and consider. I think he refers mainly to optic neuritis. Leon E. White, who is quoted by the essayist, seems to have radically changed his opinion, and I believe wisely. Perhaps he has a new point of view. Some years ago he expressed himself very strongly that choked disc was a frequent factor in infection of the posterior nasal sinuses. He announced recently that choked disc is very rare, and we should first exclude intracranial disturbances. Ward Holden who has had a large experience in this type of cases says we do not find choked disc due to infection of the posterior nasal sinuses, but mild optic neuritis is occasionally found.

White, as quoted in the year book on the ear, nose and throat for 1927, claims now that only fifteen per cent of cases of retrobulbar neuritis are due to the nasal sinuses. In the other eighty-five per cent he claims to have found the cause generally in focal infection. We do not yet know the cause in many of these cases. A large number of these cases of retrobulbar neuritis improve of themselves and get well in a short time, and for this reason, as White remarks, it is difficult to be sure of the effect of treatment when the natural course of the disease is attended by rapid improvement. A large volume of statistics must be collected before we can be sure of the effect of operation.

As regards monocular edema of the lids associated with headache. We look upon that as a very important sign, especially in disease of the frontal sinus and sometimes the ethmoid.

A great deal of importance is attached to enlargement of the blind spot. It is not confined, I think, to those cases of acute retrobulbar neuritis supposed to be due to sinus infection. It is important in that connection, however, as it is a definite indication. I have found a little difficulty in measuring the blind spot with the perimeter.

There may be very marked asthenopic symptoms in which eye diseases are not responsible, and I want to say that occasionally questioning of the patient does not elicit any symptoms to make one suspect nasal disease. I recall a girl of seventeen who consulted me because of headache which I thought was typically ocular in type, yet the most careful examination disclosed no cause for the trouble in the eyes. I asked her about the nose, and she said it had given her no discomfort, and yet when I looked into the nose I found she had ethmoid disease and numerous polyps. Removal of these relieved her headache, although it seemed to be typically asthenopic.

A few words concerning the field of vision as mentioned by Dr. Stern. I have seen several cases in which disturbances of the field of vision accompanied brain tumor. One case in particular may be worth mentioning. A young man came to me complaining of headache and failure of sight in one eye. He had homonymous hemianopsia and also optic neuritis. He was later operated upon by Dr. Cushing for brain tumor and lived many years, but finally died in a return of the tumor.

A word or two about the field of vision in pituitary lesions. Dr. Stern referred to this also. Of course bitemporal hemianopsia is the most typical symptom, but Cushing and Bodley have found homonymous hemianopsia in many pituitary cases. This was also shown by Dr. Spurling this morning in a young woman whose case was narrated. It would appear, therefore, that homonyomus hemianopsia in pituitary disease is not so very rare; although not so common and so typical as bitemporal hemianopsia, still its occurrence is fairly frequent.

Joseph D. Heitger, Louisville: Cases of the type mentioned by Dr. Gunn are always intensely interesting, particularly when one of serious nature is encountered. A tremendous responsibility rests upon both the ophthalmologist and the laryngologist who examines and treats these patients. As Dr. Dabney has said, even with all the methods of examination known at present, there are certain cases in which no etiological factor can be determined. The cases which subside of their own accord are also very puzzling. A certain percentage of these cases, if followed carefully afterward, will be found to be early types of multiple sclerosis. Many more individuals with multiple sclerosis are found on the continent of Europe than we discover in America. I do not know why unless it is because they are constantly on the lookout for such cases, but the incidence of multiple sclerosis is much greater in Europe than in this country.

In regard to measuring the blind spot. I think the best stereocampimeter we have at the present time is one devised by Dr. Lloyd. The observations made with this instrument are accurate and the findings are of especial value in checking subsequent examinations.

I now have under my care a patient who has an orbital inflammation. He has had five attacks in three of which I have seen him. Dr. Pfingst saw him in one attack several years ago. Every method of examination known has been used with negative results in regard to etiology. The attack begins very much like a tenonitis then spreads completely around the eye and back in to the orbit. In each attack in which I have seen him the condition looks very much like cavernous sinus thrombosis. However, he recovers without any diminution of vision. Urinalysis Wassermann reaction and blood chemistry negative. The patient recovered from an attack about a month ago, and reappeared at my office day before yesterday with a similar condition in the other eye. In this case I believe the trouble is due to some type of focal infection which no one has thus far been able to locate.

Samuel B. Marks, Lexington: I have enjoyed the two papers very much, and want to congratulate Dr. Gunn upon the results obtained in the four interesting cases he reported. To fully understand what takes place in the orbit and optic nerve at the time the manifestations described by Dr. Gunn develop, I think we have to depend on both the theories advanced, namely: complications from sinus infections by direct extension, and also those of focal infection.

Dr. White, in the article to which Dr. Dabney has referred, carefully studied thirty-six cases in which he removed foci of infection. In those cases where a focus of infection was found, the peripheral fibers of the optic nerve were affected and the field of vision was invariably contracted. In thirty-six cases the ethmoid was involved once, the sphenoid twice, the maxillary antrum four times, but even these cases he attributed to focal infection.

According to the theory advanced by Dr. Loeb, infection begins in the nasal mucous membrane and sinus veins, particularly about the middle turbinate and ethmoid sinus, and extends directly into the orbit by thrombosis of the small veins, involving the small veins about the optic canal and the mucous membrane, thus causing sufficient pressure upon the optic nerve to produce symptoms. In that type of case he says that the involvement is, of course, in the oculopapular bundle with a disturbance of central vision. By bearing these two pictures in mind we will have a much better understanding and appreciation of the two types of cases that are generally encountered.

Dr. Harrison Vail, of Cincinnati, Ohio, at Paris last week gave us a very delightful paper on the orbital complications of sinus disease. He considered the orbital complications arising during the couse of maxillaryantrum infections, particularly the suppurative types, as the most frequent. He placed next the frontal sinus and laid great stress on the importance of the roentgenogram for determining amount of mucosal thickening and the presence of mucocele, and the absence of the orbital ridge on the affected side in mucocele. He showed one lantern slide which apparently demonstrated the absence of the orbital ridge. He operated and found some other condition than mucocele existing, but the orbital ridge was present. He thought this was occasioned by the angle at which the picture was taken.

J. D. Williams, Ashland: The papers read by Dr. Gunn and Dr. Stern are very interesting. I was particularly impressed by Dr. Stern's remarks about the importance of alterations in the field of vision. In certain cases of glaucoma, especially in the chronic non-inflammatory types that we generally see, it might happen that the condition would fail of recognition except by testing the field of vision. I would like to ask Dr. Stern if he has encountered any cases in which the field of vision was contracted in the beginning and did not further contract thereafter no matter how much the tension increased. I have seen two such cases recently and could not find any increased contraction whatever, yet the condition generally became progressively worse.

In the matter of Dr. Gunn's paper, I would like to mention two interesting cases,—one of which illustrates the bearing on the eye of diseased sinuses, while the other, though apparently similar, proved to be an eye condition per se. The patient first referred to had an orbital tumor which appeared to be due to disease of the ethmoid sinus. This was opened; at that moment, simultaneously with the escape of pus from the sinus, the tumor disappeared,—miraculously, so it seemed to the patient. The second instance mentioned concerns a man who a few days ago came to the office with a marked ptosis of the left eyelid and some displacement of the eyeball. Examination disclosed that there was no abnormality about the nose except pressure from a deflected septum. The eye manifestations in this case were due to simple hyperplasia which subsided under appropriate treatment.

Octavus Dulaney, Louisville: I have seen two or three cases which had to be classified in the category of idiopathic swelling or cellulitis of the orbit. Roentgen-ray examination and all other known diagnostic methods failed to locate the cause. The sinuses were negative. We even had a Wassermann reaction test made which was also negative. In one case seen in private practice recently the condition subsided under simple treatment. Another patient I saw in consultation. The eye was very much swollen, there seemed to be a decided cellulitis with pain over the supraorbital region. Examination showed all the sinuses absolutely clear and the Wassermann reaction was negative, but under the administr tion of potassium iodide and mercury the symptoms promptly subsided. There was no sinus infection. In one case I even removed the middle turbinate on the affected side and exposed the ethmoid sinus, and a culture was made of the material removed for fear I might be wrong in my opinion, but the result was negative.

There are many cases of this type where we are taxed to the utmost in trying to make a diagnosis. They are not all due to sinus infection by any means. I recall distinctly one patient who had decided impairment of vision without any pain, considerable loss of weight, and was practically an invalid for three months The roentgen-ray examination was negative, but by the use of suction a small amount of mucopurulent material was removed. I stated frankly that I did not know positively whether he had disease of the sphenoid or not, but if he agreed I would exenterate the ethmoid and open the sphenoid and determine this fact. Removal of the middle turbinate disclosed a polyp attached, and a large tumor was found obstructing and completely filling the sphenoid cavity. The latter growth was fully two inches in length when removed. I had it examined thinking possibly it might be malignant. The report was a fibrous tissue tumor with no evidence of malignancy. After the operation the symptoms subsided and the man's general health rapidly improved.

Pain is not always a symptom in these cases by any means. Sometimes the patient complains only of impairment of vision. I recall a man of twenty in whose case I had considerable difficulty in making a diagnosis. Roentgenray examination was negative and he had never complained of headache. In this particular case there was infection of the posterior ethmoid sinus. His vision ws 20-200 in one eye and he could barely see shadows with the other. He was operated upon after which his vision rapidly improved. He could see to read large print with the worst eye, and vision in the other was nearly normal. It is my belief, however, that these patients seldom entirely recover their vision.

Shelton Watkins, Louisville: About four years ago, while in Boston attending a meeting of the American College of Surgeons, I had the pleasure of talking with Dr. Leon E. White, who then had very decided views in regard to the cause of retrobulbar neuritis. He believed that nearly all cases were due to involvement of the posterior sinuses and, advocated exploration of these sinuses, even though the clinical and x-ray findings were negative.

I was much pleased to read Dr. White's article, published in the March issue of this year of the Annals of Otology, Rhinology and Laryngology, on this subject. This is, I think, the article to which Dr. Dabney referred when he said that Dr. White now believes that less than 15 per cent of the cases of retrobulbar neuritis are due to a sinus infection. My remembrance is that he gave a much smaller per cent than 15. However, he says it is unusual and that most of the sinus cases come from the maxillary rather than the ethmoid and sphenoid. He refers to his former papers and admits his views have changed, for which frankness, in view of the positive opinion formerly expressed, he deserves much credit. He now believes the majority of cases are secondary to dental and tonsil infections.

Another interesting article is by Oliver and Crowe, of Johns Hopkins, which appeared in the December 1927 issue of the Archives of Otolaryngology. They report nine cases. Dr. Crowe takes the view that infection of the accessory nasal sinuses is one of the common causes of retrobulbar neuritis. He says he found on examination of some of those cases nothing but hyperaemia of the mucous membrane around the orifices of the sinuses, but he admits that other causes may also be responsible for the visual disturbance. I have great respect for Dr. Crowe's opinion, but I cannot believe that the sinuses are a frequent cause of this condition.

For a long time I have believed that retrobulbar neuritis is due to other conditions than foci of infection in the posterior sinuses. Many of us probably remember that Dr. Hans Brunner, in his course of lectures here a year ago, stated that he found the posterior sinuses to be the least frequent cause. This is also the experience of Professor Hajek, of Vienna. They believe that multiple sclerosis is the most frequent one. Some physicians claim that multiple sclerosis occurs rather frequently in this country; others that it is rare. It is very common in Europe. Many of these cases, according to my experience, follow influenza. It seems that the influenza bacillus has a predilection for nerve tissues. Not a few cases of encephalitis have followed attacks of influenza. Internists and neurologists tell us that one of the most frequent complications of influenza is involvement of nerve tissues in various parts of the body. It is important to remember that many cases get well without any operation and, also, that there are remissions.

William P. Drake, Bowling Green: I did not have the pleasure of seeing Dr. Stern's paper before he read it. Sometimes we read the advertising pags of the Journal of the A. M. A. and note the long list of instruments offered for sale, and among them we find the perimeter. I feel like comparing that with the advertisement of a gentleman who offered "twin beds" for sale,—very little used. It is one of the instruments that may be neglected in our work. I am sure it is of very great importance. There are several things in a physical way that should be considered,—the conditions of the eyes, changes in vision, large or small pupils, errors of refraction, myopia, etc., because if vision is imperfect there is almost certain to be an abnormal visual field.

One thing I wish to emphasize is the importance of testing the visual field early. If we wait until gross changes have occurred, where we find numerous scotomata, optic atrophy, etc., it is practically hopeless to operate for growths about the chiasm. If these cases are not diagnosed early it is useless, so far as restoration of vision is concerned, to operate on these patients. We know many times in testing the vision we may find the patient has 20-20, yet he has color defects, he has not perfect vision. He may see red and green at twenty feet yet fail to see blue, yet if this is moved six inches he will read it clearly, showing that he has a defect in central vision which requires attention. Oftentimes the patient does not notice this defect. It is a long time before we can see these changes with the ophthalmoscope and in the meantime we may use the perimeter, and unless it can be clearly shown that the patient has marked astigmatism it is an indication that a defect exists somewhere in that field. In all types of choroditis we have scotomata or more than the usual number of rings, we also have contraction of the peripheral field for form and color. This probably is not observed as much here as it is in the retinal area. If there are changes in the peripheral field there is also probably some retinal condition. The blue out of proportion to red and green suggests involvement of the choroid. Contraction for green and red with no change in blue indicates some change in the retina.

I do not know that I can add anything more than I have already said, except to again emphasize the importance of early examination In glaucoma or central scotoma we may look for optic nerve changes. The blind spot is oftentimes the first symptom of glaucoma. If we wait until marked changes have occurred glaucoma has then probably advanced to the point where very little benefit can be accomplished.

Walter Dean, Louisville: Dr. Gunn's case reports are interesting and results very successful. The mountains have always produced interesting pathology.

I would like to digress a little from these case reports and talk about retrobulbar neuritis caused by suppurative sphenoid sinusitis. Twelve or fifteen years ago the Special Journals were filled with such case reports and I saw not more than one or two cases where I suspected such an association. In fact it is now conceded to be a rare occurrence. Another point I wish to emphasize is, that a positive diagnosis of suppurative sphenoid sinusitis is often impossible except by exploratory operation as shown by Sir St. Clair Thompson's report below. Yet another point to be noticed is that the etiology of retrobulbar neuritis is often not determinable by present clinical and laboratory methods. Fortunately the majority of cases of undeterminable etiology recover normal optic nerve function. In the British Medical Journal, June, 1923, Sir St. Clair Thompson states that in 1906 he found on postmortem examination a suppurative sphenoiditis in a retrobulbar neuritis patient. His investigation of the then literature disclosed forty other cases. Naturally his observation attracted to him a great many such eye cases. He states that in the past few months (1923) he had explored sphenoids in nine cases and found infection in only two of them. In other words, two sphenoids were diseased and seven were normal. All but one—a case of over twenty months duration—improved practically to normal vision. We can be assured that St. Clair Thompson would not have operated the seven normal sphenoids, if he had been able to know in advance that they were normal. Why the seven well worked out cases had retrobulbar neuritis and why they recovered is not explained or now explainable.

When Prof. Josef Meller had excluded all causative factors in his eye cases except sinuses, it was his custom to refer them to the nose-throat clinic of the University with request for operation on sphenoids. More often than not Prof. Hajek's examination would reveal no suggestion of sinus disease and he would bluntly refuse to explore the sinus unless he saw cause. This caused an interesting an acute controversy. Sufficient of these cases recovered without etiological diagnosis and without operation to sustain Hajek's judgment.

Milus L. Gunn, Harlan (in closing): I wish to thank the gentlemen for their very liberal discussion. Only day before yesterday I saw a very interesting case which puzzled me considerably. A young lady came in with the history that she had suffered an attack of influenza three weeks previously. One week prior to her visit she suddenly developed acute inflammation of the right eye. Photophobia was so marked that it was almost impossible to open the lids. The entire eye was inflamed and the pupil widely dilated. She had received no drug. She complained of pain over the right frontal area. Transillumination showed a very large right frontal sinus and a very small left one. The right maxillary antrum transilluminated fairly well, the left one was cloudy. Roentgen-ray examination showed complete blocking of the left frontal and the left antrum. In irrigating the left antrum a large quantity of foul pus was obtained; when the right one was irrigated no pus was obtained. Blood for Wassermann was taken but the report has not been received. I do not know what the outcome is going to be.

This patient seemed to have all her trouble on the left side, yet her amblyopia is on the right side. She cannot count fingers with the right eye.

M. J. Stern, Paris (in closing): I would like to thank all those who took part in the discussion. My object in presenting the paper was to list the various defects in the visual field and then give the causes of each. Anyone discussing any particular disease would naturally find many different defects as they occur very frequently. Take, for instance, pituitary tumors: Some of them begin as bitemporal defects and later become homonymous. When the defect is homonymous it is absolutely confined to one of the tracts; it is very seldm,—I would not say never,—identical in the two fields.

In regard to the method of testing the visual field. I have found that for the peripheral field the perimeter is the instrument of choice. For the central zone I use the screen at a distance of one or two meters. No test can be considered of any value unless one specifies the conditions under which it is used. There are many other instruments for testing the visual field and some of them are satisfactory even when used within short radius, but I have been very well pleased with the results obtained by use of the screen.

IMPORTANT CONSIDERATIONS IN THE DIAGNOSIS AND TREATMENT OF MAXILLARY SINUSITIS.*

By Robert H. Cowley, M. D., Berea.

In this brief paper I shall not attempt to present an exhaustive study of the subject of sinus disease. Such a study might well occupy the entire time of our program. I shall not even mention those numerous cases where several sinuses are involved at the same time. We all know how often the anterior ethmoid cells are involved with the maxillary sinus, especially when the case is chronic. But we meet very many cases in our every day routine work where the maxillary sinus is the only one affected or at least where the proper care of that sinus clears the case satisfactorily. And so I shall limit myself to the statement of what I consider to be the important problems which meet us in our every day care of this sinus which pathologically is the arch offender of them all.

To begin with I want to speak a good word for transillumination. I am aware of the fact that some of our best men do not transilluminate. But I have lived long enough to learn that our best men have their prejudices and foibles just the same as we lesser lights do and they are not always safe guides on every point. The man who does not transilluminate his patients must either subject them to unnecessary trouble and expense by washing and using the x-ray or he misses many cases of sinus disease.

In the examination of large number of apparently normal young men and women I have become convinced that maxillary sinusitis is present in many people with absolutely no symptoms which would lead the patient to seek medical aid. What symptoms are present, such as indefinite headache rheumatic pains, and general debility, cough, etc., are so far removed from the region of the sinuses that they are not even suspected by the patient. Nor indeed are they suspected by the general practitioner.

I believe that for every case of maxillary sinusitis that we treat there are two others walking around which should be receiving treatment. It is one of my rules not to let a patient out of my office without transillumination. To be sure transillumination does not give us definite knowledge, but neither do many of our other procedures. We know very little more about our patient after we have taken his temperature but we do not for that reason neglect to take his temperature. Transillumination is simply a suggestive procedure. For the frontals it usually tells us practically nothing and frontal sinus is often absent. Where both maxillary sinuses are dark it may mean nothing but even here it is suggestive. Where one sinus is bright and the other dark it is exceedingly suggestive of sinus disease and one would not think of neglecting to follow such a case.

We must remember that the light which we use in transillumination and the x-ray are merely two different kinds of light ray and that each may penetrate what the other will not. A sinus transparent to ordinary light may be opaque to x-ray and vice versa. To illustrate, I had a patient with pain in the left cheek and some pus in the left middle meatus. On transillumination the left sinus was perfectly clear. Because of the pain and the pus an x-ray examination was made which showed a densely cloudy left sinus. When I introduced the canula to wash it a clear amber fluid spurted out at least a foot. This was evidently a case of cyst of the sinus and when a radical operation was done the cyst was found occupying the whole anterior part of the sinus, while behind the posterior wall of the cyst there was pus. I refer to this case to show that the x-ray will not penetrate some fluids which are transparent to ordinary light. The opposite fact, namely, that the x-ray will penetrate fluids which are opaque to ordinary light needs no illustration for we meet this phenomenon daily. Where we are in any doubt both x-ray and ordinary transillumination should be used. The important field of usefulness for the transillumination is then not the making of a definite diagnosis but the spotting of suspicious cases in the ordinary run of our office patients where no symptoms suggest sinus disease. My procedure is to transilluminate all cases, to x-ray all suspicious cases and to wash only after I am well assured that pus is present. Lift the cheek and see how light penetrates the anterior wall.

Enough cases of death as a direct result of washing the maxillary sinus have been reported to make us pause before subjecting a patient to this procedure. We should not hesitate to wash when washing is indicated but we should make every effort to find out if pus is present before resorting to washing. If we wash only suspected cases we will miss many. If we wash all suspected cases using no other means to come to our conclusion we will do a lot of unnecessary washing. Some men think that the deaths which follow washing and are not due to infection are due to air embolism. Personally I do not believe that it is possible to inject air into such small veins are are found in the sinus with the large sized trocars which are used for washing. I think that most of the deaths which follow nasal manipulations of various kinds are due to shock. However, to be on the safe side I never inject air first but always fluid. And I never use enough force to cause pain. Any sign of pain on the part of the patient is a sign for the doctor to stop.

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

We must remember that in a narrow faced individual the canine fossa recedes at a sharp angle and if the bones are thin the trocar may penetrate both walls and come out in the canine fossa. I know this to be true for I did it once myself. The water did not flow easily and I withdrew the trocar and introduced it farther back . The next day there was emphysoma of the cheek and it was sheer good luck that I did not have serious consequences following the procedure. We can practically always be sure that the trocar is in the sinus by the fact that we feel it pass into a cavity and we feel the end free in a cavity. No force should be used in washing but if the water does not come through without using force the canula should be at once withdrawn, reintroduced farther back or if this is not feasible the hole may be enlarged with a rasp and a blunt canula introduced through the larger hole and the washing done without trying to force the pus through the natural opening. Again the point of the trocar may lodge between the bone and the mucous membrane and never enter the sinus. Or it may easily happen that the point of the trocar may penetrate a polyp. Or it may happen as it did in the case referred to that the outer and inner walls are so close together that the trocar passes across the sinus and through the outer wall. One such case has been reported which was followed by infection and death. Again this pus or a polyp floating in the sinus may block the opening so that force only blocks it tighter. There are so many of these untoward happenings which may occur that it does not take more than ordinary common sense to prove to us that no force should ever be used in washing the sinus.

Immediately after washing the sinus should be again transilluminated to see if the washing has made it translucent. We can now come to rather exact conclusions as to the amount of disease in the sinus mucosa by the degree of translucency before and after washing. A sinus which becomes fairly clear after washing cannot have much chronic thickening of the mucosa, while one that is as opaque after washing as before is pretty sure to have a thickened mucosa. Whether the thickening is acute or chronic can of course not be told but in general the more chronic the case the more opaque the thickened mucosa.

One can also tell something about the condition of the mucosa by the amount and character of the pus. A large amount of mucopus tells us that the sinus cavity is at least large enough to contain the pus. If the pus comes out milky or crumby and mixes intimately with the wash water it suggests a chronic condition and a small amount of pus of course suggests a small cavity. While these things are only suggestive they do help us in coming to our conclusions.

Where, as often happens, the history and all of our findings including washing leave us in doubt as to the condition of the mucous membrane, lipiodol should be injected and an x-ray taken to see if this completely fills the sinus. If it does we may be sure that the sinus is not filled with polyp or thickened mucous membrane. We must be more careful in drawing conclusions when the shadow seems to indicate that the lipiodol does not completely fill the sinus cavity. I mean of course the bony cavity. I have already had one case where I came to the wrong conclusion from these premises. A girl aged 14 came to me with a history of asthma. All other causes had been as far as possible eliminated and on examining the head we found the left maxillary sinus black to transillumination and very cloudy to the x-ray. On introducing the trocar the water did not come through and when a rasp was used no pus was washed out. Lipiodol was injected and another x-ray taken. The lipiodol shadow was so small that with the other findings I concluded that the sinus was filled with granulations. A radical operation was done and the lateral nasal wall was found pushed clear across a very small sinus till it almost touched the outer side. There was no pathology present in the sinus mucosa. The small lipiodol shadow was due simply to the small sinus cavity which because of its shape gave the x-ray appearance of a cloudy sinus. Behind a badly defected septum was found an immense middle turbinate which by pushing out the lateral nasal wall obliterated the sinus cavity. The removal of the middle turbinate bone cleared all the symptoms so that in spite of the blundering diagnosis and treatment the result was fortunately good. Another proof that the race is not always to the swift. In another case the lipiodol shadow was small and a radical operation showed the sinus filled with watery polyps undoubtedly acute in its nature. Probably, however, patient was better off for the cleaning out.

After all, this is the only case so far where lipiodol has fooled me and I consider it one of the most valuable additions to our diagnostic procedures. It should be especially valuable to the consulting rhinologist, for with its aid he will be able in almost every case to tell his sinus patient what procedure, operative or conversative, will be necessary to cure the trouble. On many occasions I have been able to work the case through and give the patient an opinion on the first visit. The advantage of such a method over the method of repeated washings and treatments extending over a long period of time is quite apparent. If one follows this method, going over the procedures carefully he will occasionally be mistaken as I was in the case mentioned but the mistakes will be few and in my opinion no more disastrous to the patient's welfare and pocket book than the prolonged fussing that we used to have to go through with most of our cases to come to a conclusion.

I think another important point in the handling of these cases is to watch the urine for albumin, blood and casts. A hemorrhagic nephritis is not at all uncommon in acute sinus cases or in acute "flare-ups" of chronic cases. Such findings always mean grave trouble if the case is not handled quickly and efficiently.

Now a word as to treatment. I think that our best men are all agreed that the acute cases should be treated conservatively with argyrol packs or some other equally effective method of shrinking the tissues. I use argyrol packs followed by dropping into the inverted nose at frequent intervals ephedrin inhalent compound diluted one part of the ephedrin to eight of albolene. If they do not respond at once to this treatment I shrink the region about the anterior end of the middle turbinate cocainize under the inferior turbinate and wash if this can be done without pain. I then introduce a rasp and enlarge the opening so that there will be free drainage till the acute symptoms have subsided. The rasping also makes it possible to do the subsequent washings that may be necessary without making a new opening and is much more comfortable for the patient.

If I find that the patient has had several previous attacks I proceed at once to find out as near as possible the condition of the mucous membrane lining in the sinus. Here the lipiodol is of the greatest help. Even though we may be mistaken in a small per cent of cases I believe we are justified in advising a radical operation when the evidence shows the mucous membrane to be greatly thickened or polypoid. To say that the intranasal operation should never be done is going too far. To say that the intra-nasal operation will solve all our cases is equally wrong. I believe from considerable experience that 19 out of 20 of the cases which need operation can be cured by the intra-nasal route. About one out of 20 will require the radical operation. The Caldwell-Luc is such an easy operation to do under local anesthesia that one should not hesitate to do it when it is necessary. However, the reaction from this operation is much more severe than that following the intra-nasal operation and we should not choose the more severe operation if we can accomplish our object with the less formidable procedure. This I am quite sure we can do. In doing the intra-nasal operation we will find in a few cases that the affected nostril is so narrowed by a deflected septum or a large turbinate that it may be necessary to remove half an inch of the anterior end of the inferior turbinate. This is, however, seldom necessary. As a rule the turbinate can be raised from the side of the nose and by direct vision a large window can be punched in the nasal wall. This window must come down to the floor of the nose for if the bruised outer surface of the turbinate comes in contact with the raw surfaces around the window they will adhere and the opening will close. Therefore we must injure the lower edge and outer surface of the turbinate as little as possible and make the window as large as possible. With these precautions we can usually be pretty sure of getting a permanent opening.

Occasionally when a patient is sick with some intercurrent disease and the antrum is full of pus and demands attention I cocainize thoroughly, raise the inferior turbinate from the side of the nose, rasp a hole and introduce a self-retaining tube, such as is recommended by Dr. Dean, of Iowa City, in his treatment of children. This procedure is easily carried out, gives good drainage and makes it exceedingly easy to wash the sinus without the use of cocaine and with no pain. I am now using the tube after the intra-nasal operation instead of the packs and find it much superior in every way, as it makes it possible to wash and introduce mercury, with no discomfort to the patient.

In closing I want to mention the fact that in all my head work whether it be sinuses, cindechrome?, eyes, ears or quinzy I use milk injections freely whenever there is elevation of temperature or other evidences that the infection is severe. I believe that the milk injections save the patients much pain and discomfort and that in some cases they may even save life.

Now you know about how I handle my simple maxillary sinus cases and I hope some of you older men who have had more experience than I have had will frankly express yourselves on the subject for I come to these meetings not to teach but to learn.

DISCUSSION.

H. D. Abell, Paducah: I have enjoyed Dr. Cowley's paper very much. While his views may be considered rather conservative, I certainly agree with him along that line. If his routine methods of examination and treatment are followed I am sure we will not go far wrong in dealing with infections of the maxillary antrum.

As to the compartive value of transillumination and roentgen-ray examination: If I had to choose between the two, I would take transillumination. On the other hand, in the type of cases which are referred to us by the physician, from the standpoint of a focus of infection, oftentimes when all other means of diagnosis prove negative, we not infrequently get a positive report from the roentgenologist, and this will cause us to make a more detailed investigation of the antrum.

In our industrial work at Paducah we are quite fortunate in having at our command the use of roentgen-ray apparatus without any expense to the patient, and for this reason we probably use it more frequently than we would ordinarily if patients had to pay for these examinations.

It is routine with us in our hospital work in railroad cases to have roentgen-ray examinations made of the sinuses when patients are referred to the medical service, whether it be on account of a local condition of the sinuses or some obscure manifestation in which the medical side is anxious to find a focus of infection. It has been rather surprising in looking over the records of these cases to note the number of positive roentgen-ray findings in cases in which the history and clinical evidence, transillumination, etc. have all been negative.

I just happened to think of a young man whom we saw a few days ago. He came to us on account of diminution in vision of one eye. His vision in that eye was 20-70. He was sent to the hospital for further observation. The physical examination was essentially negative. Roentgenogram of the sinuses showed that he had a cloudy maxillary antrum. This was on the right side, the same side on which the eye was affected. On irrigating the sinus a small amount of pus was removed. We made only one irrigation and his vision was improved from 20-70 to 20-30.

In Paducah we are in the "sinus district" where we see a great many of these cases. It seems that the most of the patients who come to our offices have some form of sinus trouble, and perhaps we get in the habit of arriving at conclusions in a routine manner. Sometimes we have to check our work in these cases and ask ourselves why we irrigate in one cases and treat another in a more conservative way, and find it difficult to offer any adequate explanation.

..William P. Drake, Bowling Green: Dr. Cowley has given us a splendid paper. He mentioned routine irrigations in sinus infections. I only practice irrigation for two reasons, one for the purpose of examination, the other an acute infections to afford relief, and one irrigation is generally sufficient. The patient would about as soon have an operation as irrigation anyway, at least he complains of it just as much. I do not believe so much water about the sinuses is indicated, in fact it does more harm than good. What these patients need is drainage and if you give them that with aeration they will get well.

I agree with Dr. Cowley about transillumination. I think it is very valuable and should be used in all cases. In many cases roentgen-ray examination is practically negative. The roentgenogram rarely shows anything unless there is involvement of the bone or mucosa. In such cases the roentgenogram shows there is some trouble. We may irrigate and find no pus, and yet there may be infection in the sinus. When I began doing maxillary sinus work a small opening was made low in the ridge, as I did not believe it was necessary to have a large opening. Since then I have found that the higher the opening is made the better are the results secured. In other words, the opening does not close so quickly. If the ridge is encroached upon too much granulations form and close the opening.

M. C. Baker, Louisville: The essayist has given us a very practical and interesting paper which deal with something we meet almost daily in our practice. However, there is one important point which he did not fully cover, and that is the matter of subjective symptoms.

We should always take a very careful history in cases of suspected infection of the maxillary sinus,—whether the patient has suffered from a so-called "cold" probably of the grippal type from one to three weeks previously which has reached the chronic stage, whether there have been repeated attacks of cold, etc.

The question of pain and the time it appears is also important. Most sinus headaches and pains occur in the morning between eight and twelve o'clock and subside during the afternoon. That is more or less typical but not always true. The location of the pain is important. As a rule at least I have found it so in practice, that in the majority of cases instead of pain being over the cheek it is referred to the brow just over the roof of the nose. More patients complain of pain at that point than in the classical region over the antrum. The pain is oftentimes very severe and may mislead one into believing frontal infection is present. Another type of pain which has often occurred in my experience is referred to as "reflex pain" in the back of the head just posterior to the mastoid. Oftentimes patients who "know too much" come to us and say they think they have mastoiditis. Another symptom of which the patient complains is dizziness or increase in discomfort and pain on stooping.

I believe these subjective symptoms, particularly the question of pain, are very important in making our diagnosis.

M. J. Stern, Paris: I have recently tried a method, something which I have never seen described in the literature, that has given me a great deal of satisfaction in several instances. In the matter of irrigating the maxillary sinus when there is resistance encountered. Of course if there is a polyp which obstructs the needle nothing will be successful. In many cases where the natural opening appears very small (and I have tried irrigation through both the middle meatus and also the inferior meatus with a curved trocar,—although I like a straight one better,)—without satisfactory results, I introduce another trocar alongside the first one, and the irrigating fluid passes into the sinus through one canula and outward through the other. This plan has worked beautifully in several cases where there was resistance.

I would like to ask Dr. Cowley in closing to tell us something more about the use of mercurochrome. According to reports it seems to have been quite satisfactory in some cases. However, after a thorough trial I have about discontinued using mercurochrome and am now trying hexylresorcinal which appears to give much better results. I have had several cases where after the introduction of mercurochrome the pus seemed to increase rather than decrease.

Like the other speakers I have enjoyed Dr. Cowley's paper.

Octavus Dulaney, Louisville: Dr. Cowley has given us a practical paper, and his methods of investigation are very interesting. Of course it is known that we cannot depend uopn transillumination for diagnosis of maxillary sinusitis in all cases. In chronic disease of the antrum where there is thickening of the bony antral walls, transillumination will merely show a darker antrum on one side than the other, but the roentgen-ray is required to clarify the diagnosis.

Like Dr. Baker I have been very much interested in location of the pain in these cases. In chronic disease of the antrum the patient generally has pain in the supraorbital region. In acute infection, however, the pain is practically always localized in the antral area on the side of the face.

It is always advisable in obtaining the history to inquire whether or not the patient has had any trouble with his teeth, whether he has had any teeth extracted, etc., and whether there has been left an opening into the maxillary antrum. Oftentimes in extracting teeth the dentist removes the roots and in doing so exposes the antrum which may be infected. In many instances the dentist will suture the gum over the cavity, and as a logical result within a few days the patient has an acute infection of the antrum. Instead of doing this dentists should refer the patient to a competent rhinologist who can make an opening in the proper place and drain or irrigate and thus relieve the patient.

In regard to opening the maxillary antrum: This procedure has been very much simplified by a little instrument which I am exhibiting for your inspection. Instead of puncturing the antrum with a trocar, Thornwald has devised a small trephine with which an opening can be made as high as desired and the antrum entered without pain after cocainization, then irrigation may be practiced satisfactorily without enlarging the opening.

Many cases of antral disease produce severe systemic effects where little secretion is found, but there are decided bony changes in the antrum. It is not always the largest amount of secretion of purulent or mucoid material that produces the greatest systemic effect; it is the chronic type of infection with scant secretion where there are bony changes. With the small instrument I am exhibiting the antrum can be irrigated either through a Luer or some other type of syringe which is introduced into the opening under the inferior turbinate. The argyrol always shows whether there is mucus or pus present as it will present itself in a certain area, otherwise the argyrol returns unchanged.

In exceptional cases where a larger opening is desired it may be made by boring several holes with this small trephine, one immediately in front or behind the other, and with the instrument I am showing you the opening may be enlarged without any trouble. The particular advantage about this method is that no rubber tube or other drainage device is required. The maxillary antrum of the smallest child can be irrigated without the least discomfort as I have many times demonstrated. For this purpose I always use argyrol solution. I never use water. Cases of acute infection generally subside within ten days.

The main features in treating antral infection are ventilation and drainage. When these have been accomplished the infection will subside of itself in nine cases out of ten. As an illustration: regardless of how large a faucet may be placed in a vinegar barrel, the fluid will not escape, but when a vent hole is made there is a gush of fluid. That is exactly the principle of the method I have attempted to describe. Dr. Drake spoke of making the opening high so it will not close. He has the correct idea about that feature. With the trephine opening I have suggested the antrum may be successfully irrigated and ventilated without any danger of closure. By using this plan it is rarely necessary to remove any portion of the inferior turbinate. For irrigating the maxillary antrum I have found that one cc. of argyrol solution is generally sufficient. This may be repeated if deemed desirable.

L. M. Scott, Jellico, Tenn.: When we take into consideration the anatomical arrangement of the maxillary sinus, we can readily understand why a patient with an infection of this sinus suffers more from pain after being out of bed for a few hours in the morning than he does during the night. The ostium maxillare, or natural opening of this sinus, is situated nearer the roof than the floor of the cavity, and drains into the middle meatus. The recumbent position while in bed at night favors drainage, while the erect position during the day retards it. It would seem that nature made a msitake in not placing the opening under the inferior rather than under the middle turbinate. Perhaps if the patient could spend most of his time standing upon his head during the day he would be freer from pain as a result of better drainage.

If seen early we can, in most instances, relieve acute maxillary sinus conditions without operative intervention of any kind. The treatment is to first shrink the middle turbinal, which is blocking the opening from the sinus. This is done with a solution of cocaine and adrenlin applied directly under the middle turbinal on a cotton pledget, and allowed to remain for a few minutes. I next apply a 10 per cent solution of one of the colloidal silver preparations in the form of a cotton tampon, which is allowed to remain under the turbinal for half an hour or longer. I prefer the silver preparation known as cargentos, as it is less irritating to the mucous membrane. This method of treatment should be repeated once a day until all symptoms disappear. It is understood, of course, that the nasal cavity is first cleansed with some form of warm alkaline solution.

Robert Walter Beldsoe, Covington: There seems to be much divergence of opinion in regard to the practice of irrigating the infected maxillary sinus. I want to ask you to withhold final judgment in the treatment of such cases until you have tried my hypertonic saline solution as the irrigating medium. If you will irrigate these acutely infected sinuses with hypertonic saline I am sure you will find it of decided benefit.

If you do not shrink the middle turbinate as Dr. Scott says and secure drainage that way, or if you do not practice paracentesis of the maxillary sinus, you are going to overlook many cases in which infection exists. With proper technique and care paracentesis may be done rapidly and painlessly. Some operators have a more delicate touch than others, and if one is not careful in his manipulations the patient may be caused considerable unnecessary pain; but with the exercise of gentleness plus good local anesthesia, the sinus may be opened without pain. I have done it repeatedly in the presence of acute infection and irrigated the antrum with the solution mentioned with great benefit and satisfaction.

I will mail to each of you a reprint of my article detailing to proportions in this solution and hope that you may find it a favorable adjunct particularly in acute cases.

Joseph D. Heitger, Louisville: Nothing has been said about the pathology which exists in maxillary sinus infection which is perhaps the most important feature of all. As Hajek has so well shown, whether maxillary sinus infection is acute or progresses to the chronic stage depends entirely upon whether the ciliated epithelium is absent or present. Suppurative cases will generally get well under ventilation and drainage, but polypoid cases will not get well under that type of treatment because the ciliated epithelium is often destroyed and there is no way for drainage to occur. We have an analogous proposition in atrophic rhinitis. The cilia are gone from the nasal mucous membrane and the secretions stagnate and stick to the mucous membrane.

After all, if the patient with maxillary sinus infection is going to get well with irrigation, it is entirely a question of pathology. If the ciliated epithelium is intact recovery ensues under conservative treatment. If the ciliated epithelium has been destroyed radical operation must be performed as the mucous membrane acts like a foreign body and must be removed if we expect to secure satisfactory results.

A. M. Alden, St. Louis, Mo.: I regard this paper and discussion as exceedingly valuable, in that it reflects the viewpoints of various specialists who are all meeting daily this question of infection in the maxillary sinus. Nothing has however been said about this same condition as it occurs in children. Dr. Cowley stated that maxillary sinus suppurations are probably more common than we have any idea and I thoroughly agree with him. I desire to add, however, that maxillary sinus suppurations in children are far more common than we have hitherto believed.

In recent years some of us have been paying particular attention to sinus infections in children and the constitutional manifestations which occasionally accompany them. Because we have been looking for these cases, we have found that many children suffering from conditions often remote from the sinus itself exhibit on careful examination extensive pathology in the maxillary antrum which when cleared up, produces a prompt subsidence of the constitutional condition.

The diagnosis of maxillary sinusitis in a child is as a rule easy. The local findings, the roentgenographic evidence and the information afforded by transillumination are all of equal value in children as compared with adults. The final criterion is, however, an examination of the antral contents. The maxillary antrum of the child can be readily irrigated under gas anesthesia and a specimen of his secretion sent to the laboratory for bacteriological examination.

As a rule in the child, a few irrigations followed by appropriate medication left in the antrum are all that is necessary to produce a cure of the suppuration. Chronic hyperplastic involvement in the maxillary sinus is rare in children as compared with adults. Where the disease has existed for a long time and does not respond readily to irrigations, we have found it advisable to make a window underneath the inferior turbinate and introduce a flanged soft rubber tube through which daily irrigations and medication can be carried out with perfect comfort to the little patient.

I agree with what Dr. Heitger has said, namely, that the operative indications in these cases must be predicated upon the existing pathology. There are two types of operation applicable to maxillary infections in adults, the intranasal and the external. In my own practice before deciding upon any form of operative procedure, I use every possible means at hand to secure definite information as to what type of pathology I have to deal with in the given case. Since the advent of lipidol, we have a new adjunct to roentgenographic investigation of the sinuses that is of great value. Cloudiness in a sinus as shown by the x-ray alone does not necessarily mean thickened mucosa or periosteum. he injection of lipiodol however and a subsequent x-ray will if the mucosa is much thickened or if polyps be present show definite filling defects. If with all of this we are still not satisfied, we have the alternative of making a small opening underneath the inferior turbinate, introducing the nasopharyngoscope and examining the antral mucosa by direct vision. If the sinus is simply a suppuration filled cavity with no great change in the mucosal lining an intranasal operation will probably bring about a cure. If the antral mucosa has undergone diffuse infiltration with polyp or cyst formation, which always means that a periostitis exists underneath, anything except a complete removal of the diseased mucosa is utterly futile. For this purpose, the external operation, that is the Caldwell-Luc or Denker procedure is the method of choice.

I am firmly convinced that if more time were devoted to making an adequate diagnosis of the exact pathological condition which exists in a given case and the treatment based upon this, there would be fewer failures in operations on the maxillary sinus.

J. A. Stucky, Lexington: Dr. Cowley's paper presents several points of unusual interest and I desire to emphazie two or three of them. 1. He did not mention the technique of transillumination that seems to me most important as described by Dr. H. H. Briggs, Asheville, North Carolina, so placing the light that the sinus is transilluminated from above. This method has given me more reliable information than transillumination from below upward. 2. In irrigating the maxillary sinus the minimum amount of force should be used. 3. The importance of thoroughly cleasing the post nasal cavities before irrigating the antrum. Irrigation of the antrum alone does not afford relief. I have found many cloudy antrums apparently filled with pus and mucus and after irrigating the post nares then using the trocar and irrigating the antrum there was little or no accumulation in the sinus. This procedure has reduced the necessity of surgical interference in at least one-half of the acute and sub-acute cases. In complicated cases surgical treatment must be resorted to. In one of my cases there was a large cyst on the middle turbinate which had destroyed the antral wall by erosion. In two other cases nasal polypi springing from the middle turbinate and ethomid region was so large that after being snared they could not be removed through the anterior nares. It should be emphasized that before irrigating any maxillary antrum we should endeavor to get a good view of the middle turbinate and if this is impossible extreme caution should be used.

R. H. Cowley (in closing): I wish to thank the gentlemen for their liberal discussion of my paper. I am particularly grateful to Dr. Alden for calling attention to the nasal periscope and making an opening large enough to introduce it. I have never used this instrument but will do so in the future.

The major portion of my work is not consultation practice, I am interested in school children who come from the mountains of Kentucky. In Berea College we have twelve hundred new students every year. These children are reared in poorly constructd houses and have colds from the time they are born until they reach adult life. These youngsters have "running noses" practically all the time, but little attention is given to their symptoms. The reason I did not dwell on the question of symptoms in the paper was because I had to stop somewhere, and I took it for granted that most of you were keen on the symptomatology anyhow.

One of the points I tried to emphasize was that when I meet these children on the campus I know many of them have sinus infection even before I have had a chance to examine them. Consequently when they come into my office I transilluminate the sinuses and keep a record of my findings. If they reappear and are again transilluminated and the findings do not correspond to the former examination the data obtained are of some value.

It must be remembered that these children are presumably normal, that was an important point

I tried to make clear in the paper. I firmly believe that we have many more cases of sinus infection than we have heretofore imagined.

In regard to mercurochorme. I do not know that I have anything in particular to say about it. It has seemed to me that infection subsides quicker after the introduction of a few drops of this agent. I think it does some good, but have no real proof of it.

LEUKOPENIA EXTREMIS IN ACUTE STAPHYLOCOCCUS AND STREPTOCOCCUS HEMOLYTICUS INFECTION OF TONSILS: REPORT OF CASE.*

By Jesse Hall Simpson, M. D., F. A. C. S.,
Louisville.

Hypoleukocytosis, leukopenia and aleucocytosis are terms used synonymously and interchangeably to denote a deficiency of leukocytes in the blood. The word leukopenia seems to me the most expressive and will be utilized herein.

A relative leukopenia has occasionally been observed during the course of acute infections, but the converse is generally true; that is to say, it is a well known fact that, in the majority of acute infectious processes, there is a marked increase rather than decrease in the number of leukocytes. By relative leukopenia is meant a leukocytic range below 10,000 cells. In true leukopenia, however, leukocytic reduction may progress to almost the vanishing point, and prompt fatality is then the invariable outcome.

The occurrence of leukopenia extremis during the course of any type of acute infection must be extremely rare, as diligent search of available English literature of the last few years reveals few references to the subject. A limited number of cases are mentioned as having occurred during acute lobar pneumonia, but none in any way comparable to the one herein reported can be found. It is for that reason the case is deemed worthy of detailed record.

Case Report.

Patient, Mrs. A. W., white, aged 45 years, housewife, was first seen by me on the afternoon of July 2nd, 1927. She stated that she had always enjoyed excellent health. There was nothing of importance in either the family or personal history.

Present illness: The patient said she had been suffering from an intensely sore throat, and that on July 1st she became very ill and fainted in a neighboring grocery store. She was assisted to her home and was seen by two or three physicians during the day, all of whom recommended that a specialist in diseases of the throat be called.

When seen by me the next day (July 2nd) she was still complaining of sore throat, and in addition she had severe pain in the right side of her neck. Her temperature was then 99.3°F., pulse 78 and of good volume. Objectively she had what was apparently a typical bilateral follicular tonsillitis, and this diagnosis was made. The tonsils were red and swollen and many of the crypts were filled with yellowish-white exudate. Examination disclosed no enlargement of the superficial cervical lymphatic glands, but slight tenderness of the deeper glands was elicited on pressure.

On the basis of the foregoing diagnosis the tonsils were thoroughly painted with a solution of mercurochrome (25 per cent) and silver nitrate (10 per cent). Warm normal saline solution was ordered for use at frequent intervals as a mouth cleanser and gargle. A simple laxative was prescribed to encourage free elimination through the intestinal tract.

At my second visit, the following day (July 3rd), little or no improvement was noted in the appearance or condition of the throat. The patient was restless and said there had been no cessation of pain in her neck. Warm saline gargle continued.

On July 4th the pharynx and tonsils presented a very "dirty" or septic appearance. There was some edema of the uvula and soft palate which gave the picture of mucosa that had been blistered by the application of strong iodine solution. Cotton swabs used in the examination showed slight blood stains. There was no ulceration in the throat, and no edema of the glottis or about the larynx. The general appearance of the patient, however, was decidedly unfavorable. She was very restless and complained of intense pain in the neck and throat. The right cervical glands showed evidence of involvement and there was some erythema of the right side of the neck. Temperature 99.2°F., pulse 72.

The patient was immediately removed to the Norton Memorial Infirmary and Dr. J. Rowan Morrison, the family physician, was called in consultation. During the afternoon the temperature rose to 100°F. and the pulse to 85. The general treatment, under the direction of Dr. Morrison, included: bromides every four hours, warm saline gargle continued, antiphlogistine applied to the neck. Soft diet, feeding every two or three hours,—milk toast, ice cream, orange and fruit juices, coffee and cream, gelatin, etc. Codeine sulphate 1-2 grain for severe pain, repeated several times in two or three hours if required.

Laboratory findings, July 4th.: Urinalysis:

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*Read before the Eye, Ear, Nose and Throat Section of the Kentucky State Medical Association, Louisville, May 25th, 1928.

urine cloudy, color deep straw, reaction acid, specific gravity 1020; albumin one-plus, sugar and diacetic acid negative; an occasional epithelial cell, one granular cast, and one to three fatty casts, per high power field. Examination of smear from the throat disclosed many staphylococci, a few streptococci and spirocheates with fusiform bacilli.

Blood examination: Hemoglobin 79 per cent, erythrocytes 4,200,000. Six leukocyte counts were made which showed the following results:

First count	150
Second count	100
Third count	150
Fourth count	50
Fifth count	00
Sixth count	50

Only five cells were found on each of two slides.

Based upon the foregoing laboratory findings it was plainly apparent that the patient, in addition to her other troubles, had typical leukopenia extremis.

On the morning of July 5th the tonsils showed greater swelling, the mucosa was much thickened, the reddened area of the neck had assumed a purplish hue, and it was noted that the patient's condition was becoming progressively worse. Doctors Frank, Dabney and Morrison were then called in consultation. These gentlemen concurred in the diagnosis of acute streptococcic pharyngitis and tonsillitis plus leukopenia extremis. General treatment by Dr. Morrison was continued Strychnia sulphate 1-20 grain hypodermatically every four hours; morphia sulphate 1-2 grain hypodermatically as required to relieve pain. Ice cream or sweet cream to be given whenever desired by the patient.

During the early morning of July 5th the nurse noticed an hemorrhagic area just anterior to the right sternocleidomastoid muscle which rapidly enlarged and extended downward. About nine o'clock the same morning a similar spot appeared in the same situation on the left side. This soon extended downward over the chest to the breasts. Temperature 98.9° F., pulse 72.

Laboratory findings, July 5th.: Leukocytes, three counts made:

First count	100
Second count	100
Third count	150

Only one cell—lymphocyte—found on each of two slides. Direct smear from the throat, and also smear from the culture, showed many staphylococci and a few streptococci. (Staphylococcus albus; streptococcus hemolyticus).

About noon July 5th it was observed that the patient was rapidly becoming weaker. Temperature 100° F., pulse 85. Her systolic blood pressure receded to 70 mm. Hg. and she expired at 2:15 p. m. Examination of culture taken July 5th showed a large number of colonies of streptococcus hemolyticus. This examination was made July 6th, the day after death.

DISCUSSION.

William N. Offutt, Lexington: I want to congratulate Dr. Simpson on the presentation of this rare and interesting case. One of the unusual features was the absence of fever, considering the type of acute throat infection which the patient had. In the majority of cases of leukopenia reported the onset was sudden with high or moderately high temperature.

Agranulocytic angina, agranulocytosis and leukopenia all exhibit a peculiar blood picture, and are usually associated with a septic lesion of the throat. The blood findings are the most characteristic diagnostic features. The erythrocytes, hemoglobin and the blood platelets are are normal, or may be slightly below. The leukocytes, on the other hand, are greatly diminished. Th polymorphonuclear cells are markedly reduced or absent, hence the name agranulocytosis. The bone marrow shows a distinct decrease in leukocytes with few or no granulocytes. In all cases of ulceration of the throat, so-called "septic sore throat," and obstinate Vincent's disease, a complete blood count should be made, as the throat presents the first evidence of this fatal disorder. Cases of leukopenia thus far reported have proved fatal in three to fourteen days.

If I may be permitted to do so, I would like to briefly report a case recently coming under my observation. The patient, Mrs. H., aged 34, was seen by her family physician February 26th, 1928, complaining of pain in the right side of her neck and shoulder and intense headache. Her temperature at that time was 101.4°F., pulse 105, respirations 27.

I was asked to see the patient the following day (February 27th) as most of her discomfort was from her throat. Examination revealed the following: Her tonsils had been removed. There existed inflammation and rednes of the soft palate extending downward along the pillars; thickening of the oropharyngeal wall extending upward into the nasopharynx, no membrane present. The mucosa of both nostrils was turgescent and extremely sensitive. Transillumination of the nasal accessory sinuses negative.

February 28th the patient was decidedly worse, restless and irritable. Temperature 102° F., pulse 120, respirations 30. Nasopharyngeal congestion was more pronounced; a thin whitish membrane extended downward from the nasopharynx which was easily wiped away with cotton swab. Culture from the throat showed no Klebs-Loeffler bacilli, but there were present many staphylococci of the aureus type. Blood count: leukocytes 5,800; polymorphonuclears 8.4 per cent, small lymphocytes 61 per cent, large lymphocytes 30 per cent.

On February 29th I was summoned in the early morning and found the patient in stupor, but she could be aroused and would answer questions and take medicine. In the afternoon she lapsed into profound coma which lasted until four o'clock the next morning. Temperature 102.4°F., pulse 120, respirations 30. During the night we thought the patient might die at any moment. Culture from the throat negative for Klebs-Loeffler bacilli; staphylococcus aureus and streptococcus hemolyticus present.

March 1st the patient was conscious and rational. Temperature and pulse unchanged, but she developed a cough during the day. Chest examination negative except for a few mucous rales.

March 2nd condition of the throat and nose much improved; no membrane present. Her breath decidedly fetid and at frequent intervals she expectorated considerable quantities of a thick, clear mucus. Chest examination disclosed that she had lobar pneumonia. Blood count: leukocytes 18,000, polymorphonuclear cells 72 per cent. The patient died four days later from pneumonia.

The interesting features of this case are: the low leukocyte and polymorphonuclear count in the beginning, and the high leukocytosis after pneumonia developed.

Joseph D. Heitger, Louisville: The case reported by Dr. Simpson is very interesting and the results indicate that in the future we will have to adopt a different manner of handling cases of so-called acute follicular tonsillitis. The case belongs to the type known as agranulocytosis or agranulocytic angina of which there have been reported more than fifty cases during the last few years. While not yet classified as a distinct clinical entity, reports in increasing numbers will no doubt make it one. The disease is one affecting the granulocytic system and is allied to the acute types of leukemia.

In his report Dr. Simpson said nothing about the presence or absence of myelocytes in the blood. In most of the cases differential diagnosis must be made between acute leukemia and agranulocytosis. In leukemia there is generally a hemorrhagic diathesis, as occurred slightly in the case reported, with the presence of myelocytes in the blood and spleen. These changes, however, have been rported in several cases as occurring just before death. Of course in such instances the blood picture changes rapidly and diagnostic determination cannot be based on the blood examination made just preceding death.

In severe types of so-called acute follicular tonsillitis it becomes incumbent upon us in the future to have more blood work done than we have in the past; first, to avoid comlications, and second to further the classification of this entity.

Samuel B. Marks, Lexington: At the recent meeting in Washington, D. C., Potts, of Omaha, Nebraska, presented a paper on the subject of agranulocytosis and reported three personal cases. He collected the records of eighty additional cases from the literature making a total of eighty-three. He divided them into two groups. In the first group of thirty cases the patients were treated with arsphenamin with no results. Many of the patients were given blood transfusion with no results. In one of his cases there were some curious prodromal manifestations. The patient first complained of sore throat accompanying a mild attack of influenza and at that time had marked leukopenia which improved and she apparently recovered. A few weeks later, however, she had acute inflammation of the throat, developed extreme leukopenia and finally died. In the cases he reported, if I remember correctly, the lowest leukocyte count was 300, and in all of them there was absence of granular cells.

The fact cannot be too strongly emphasized that when we encounter cases of so-called acute sore throat, where there is noted a lesion of the necrotic type with grayish membrane about the throat, teeth or mouth, a very careful study of the blood picture should be made. In all the cases reviewed by Potts there was extensive involvement of the mucous membrane, in one case particularly from the conjunctiva to the anus including the vagina. In many of the cases, where the patients lived for three or four days, there was not only involvement of the pharynx and esophagus but also of the intestinal tract,—in some of them the entire intestinal tract was affected.

Edmond D. Wells, Louisville: About a year ago I was asked by Dr. Harry J. Phillips to see a child that seemed to be suffering more intensely than children generally do with sore throat. When seen the patient gave every indication of being seriously ill, the throat was inflamed and swollen and covered with a dirty, necrotic looking membrane. Culture was made for the Klebs-Loeffler bacillus and found negative. The child was then admitted to hospital for further study and was seen in consultation by several other physicians. The leukocyte count at that time was 2,500, which we thought must be wrong and had the blood examined by another laboratory with the same result. Within twenty-four hours that child's leukocyte count diminished from 2,500 to 600. Transfusion with citrated blood was then performed by Dr. James W. Bruce.

The following day the leukocyte count was 300; in other words, within forty-eight hours there was a reduction in leukocytes from 2,500 to 300. The child died twenty-four hours later.

This was evidently a case similar to the one Dr. Simpson reported. At first the child had what was thought to be an ordinary sore throat to which the family gave little attention.

William P. Drake, Bowling Green: I am very glad to have heard the report made by Dr. Simpson. If I have ever had a case of the type he described I did not know it. We know that the leukocytes may be destroyed by any severe infection, that is when the system is overloaded with poisonous products. I was just wondering how much influence resistance and immunity might have in these cases. We speak of these things rather glibly, but what do we really know about them? I think we use the word resistance entirely too freely. That is an error which should be corrected especially with reference to cases such as Dr. Simpson reported. Many times we are apt to say to the patient "your mode of living, your diet, etc. has lowered your resistance, and now you have thus and so." We might apply a similar reasoning to immunity. Just what is immunity? When we get it how long does it persist, or do we keep it always?

Jesse H. Simpson, Louisville (in closing): After observation of the unfortunate case reported, available literature was carefully searched for parallel cases and none found. In studying the subject of agranulocytosis, agranulocytic angina (a palpable misnomer) and leukopenia, it seemed to me that a distinction should be made between these cases, although it is recognized the classification is still not entirely clear. Obviously the two former terms refer to reduction of granular cells only, whereas the latter includes every variety of leukocyte contained in the blood.

The case reported was one of leukopenia extremis which developed during an attack of acute tonsillitis. The patient had practically no fever and the erythrocyte count remained normal. However, infection by the hemolytic streptococcus suddenly became so virulent and overwhelming that the leukocytes were almost totally destroyed and fatality promptly ensued. Search of the literature failed to disclose a single case in which the leukocytic reduction so nearly approached the vanishing point as in the one here recorded.

I thank the gentlemen for their discussion.

GANGRENOUS DERMOID CYST OF OVARY.*

By John W. Price, M. D., F. A. C. S.,
Louisville.

Patient, E. M., female, white, aged 40, admitted to hospital March 14th, 1928. Her chief complaint was pain in the left lower abdominal quadrant.

According to the history obtained, acute pain had been present for about a week prior to admission, that it began in mid-line of the abdomen and extended first to the right side and then toward the left. The pain was more acute in the left side and its severity had increased. The patient stated that she had suffered from attacks of right abdominal pain, lasting for a day or two, at intervals for six years, apparently induced by exercise and work. There had been no nausea nor vomiting at any time; appetite fair. Genito-urinary history essentially negative; occasional pollakiuria and burning sensation on micturition. There had been some gain in weight during the last year.

Menstruation became established at age of 13, regular, 26-day type, duration four to five days, painless as a rule. Last menstrual period February 20th, 1928. Patient has had a vaginal discharge for six years. She was married in 1908, one miscarriage same year, one living child, aged 17 years. Patient divorced from husband in 1914.

Physical examination: Patient well nourished and developed. Pulse, temperature and respirations normal. Head, neck and heart apparently negative. Abdomen normal in size, striæ of pregnancy present, slight asymetry of left side below umbilicus, palpation elicited tenderness in left lower quadrant. Vaginal examination showed marital outlet, cervix firm and irregularly lacerated, the uterus and a mass which appeared to be attached thereto extended nearly to umbilicus; no lateral masses palpable, some tenderness on manipulation. Clinical impressions: (1) uterine leiomyoma, (2) bilateral salpingitis, (3) chronic cervicitis, (4) ovarian cyst adherent to fundus of uterus.

Operation, March 15th, 1928: The cervix was cauterized and the abdomen then opened. There was a cystic tumor of the right ovary, which was gangrenous and adherent to the fundus of the uterus. The veriform appendix and omentum were found in left side of the pelvis. The cyst pedicle was twisted and gangrenous downward to the broad ligament. The right oviduct was gangrenous and adherent. The left ovary was cystic, there being several cysts size of horse chestnuts. Bilateral salpingo-oophorectomy and appendectomy performed in the usual manner.

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*Read before the Louisville Medico-Chirurgical Society.

Pathological report: Dermoid cyst of ovary with diffuse hemorrhage; simple cysts of ovary; chronic bilateral salpingitis; subacute peri-appendicitis; corpus hemorrhagicum.

The patient's convalescence in the hospital was without noteworthy incident. She was dismissed well on the fourteenth day after operation.

In a retrospective survey of this case, the following seem to be the outstanding features of interest:

(1) The symptoms presented by the patient were so meager prior to operation that no one realized her condition was critical.

(2) While a definite pre-operative diagnosis was not made, we recognized the presence of a pelvic mass believed to be composed of the uterus and an ovarian cyst attached to the fundus. This was verified in every detail by the operative findings.

(3) The ovarian cyst proved to be a suppurating and gangrenous dermoid ,which is recognized as a most dangerous type. The twisted cyst pedicle was gangrenous, as was also the right oviduct.

(4) The gangrenous cyst walls were exceedingly friable and spontaneous rupture seemed imminent. In fact, perforation occurred during removal, but fortunately the pelvic cavity was not contaminated.

(5) It is quite possible, had operation been deferred for any length of time, rupture of the cyst might have occurred with fatal result.

Chronic Ulcerative Colitis.—Fourteen cases of acute exacerbations of chronic ulcerative colitis have been studied by Paulson with reference to a bacterial etiology. Ten distinct types was present in more than three cases. Seven types of these streptococci were intravenously injected into thirty-four rabbits, five of which produced lesions in these animals. Twenty other rabbits were injected intravenously with seven types of bacteria from sources other than the bowel in cases of ulcerative colitis. The author believes that there was no difference between lesions produced in the intestines of rabbits by the intravenous injection of organisms isolated from cases of ulcerative colitis or from other sources. Grossly and microscopically, all lesions were similar, differing only as to their location within the intestinal tract. Paulson is of the opinion that the bacterial etiology of ulcerative colitis is still undetermined.

POSTOPERATIVE ANORECTAL ULCERATION.*

By Granville S. Hanes, M. D., F. A. C. S., Louisville.

I desire to present the following case report. The patient was a man living in northern Kentucky. Two years ago he was operated upon for rectal fistula, quite an extensive wound being made on the left side and posteriorly. The major portion of the wound on the left side of the rectum healed, but, as will be noted from the first photograph exhibited, there was one area which did not heal but began to ulcerate and finally extended upward involving the posterior anal wall and the cutaneous surface for an inch or more. He visited many physicians, was examined in every conceivable way, every known general and local treatment was applied, but he did not improve. A physician whom he had consulted suggested that he come to Louisville, which he finally did early in January, 1927. The lesion then presented the appearance as shown in the first photograph. The ulcer was hard, fibrous in character, dense, raised edges, with a whitish appearance.

A needle was introduced just posterior to the ulcerated area and as soon as it passed through the skin it entered a potential cavity. Novocaine was then injected followed by a solution of hydrochloric acid. These injections were made, not just under the skin, but deeply into the tissues, as the entire area around the rectum was diseased. The photograph shows a dark discoloration in the right anterior quadrant as the result of infection of the tissues there. The patient had a low grade infection involving the entire perirectal structures which was the reason for the perirectal abscess followed by fistula, and also explains why the ulceration persisted.

After giving him one injection the patient was instructed to introduce his finger into the rectum daily and dilate by pulling backward on the anal muscles. He was given a simple salve for local application. He was also instructed how to massage the tissues around the rectum as a daily routine.

Six weeks later he returned for a second treatment and then went to Florida for a prolonged visit. After returning to his home he telephoned that he was coming to Louisville, and stating that he was 90 per cent well. He came to see me last week at which time the ulcer was no larger than my finger nail, the surface presented a healthy appearance, and I considered him practically well.

When he first consulted me the ulcerated area was so hard and fibrous a needle could be introduced only with difficulty. The underlying tissues were extensively diseased as the result of a low grade infection, which explains why the ulcer refused to heal. As soon as the injection was made there was an influx of blood, the nutrition of the tissues was improved, and the lesion began to improve.

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*Read before the Louisville Medico-Chirurgical Society.

DISCUSSION.

J. Garland Sherrill: Dr. Hanes always says something which causes one to think. I am in accord with what he has said about ulcers. If an ulcer does not heal, if it is irritable and persistently painful, there are two causes to be considered. One is impairment of the circulation in the region of the ulcer, the other is infection at the base of the ulcer. If there is marked induration about the ulcer, it is the experience of most surgeons that the infiltration comes from fibrous tissue which contracts around the base, the blood therefore cannot get into that area and healing is prevented. If the ulcer is infected, without much fibrous tissue, the infection causes irritation and destruction of granulations prevents healing.

In the case reported by Dr. Hanes undoubtedly the patient had an infection involving the tissues underneath the base of the ulcer as he has described. The customary method of treating such a lesion is first to destroy the infection, second to stimulate the circulation and thus induce an active reparative process. If Dr. Hanes would have pathological examinations of the diseased tissues made, and cultures of the organisms and give us the real foundation of his views, he would present something worth while to the profession. We must determine what is the pathological condition in these cases. Of course, we have the greatest respect for Dr. Hanes' opinions, and I do not wish to be understood as decrying his method of treatment. We know that it requires radical surgery and radical treatment to relieve or cure disease of the rectum.

Granville S. Hanes (in closing): I am glad Dr. Sherrill raised some of the points he did in his discussion, because they are well worth consideration. In the first place he says: find the germ and identify it, then you have a basis on which to work. If one has a remedy that will cure disease, what difference does it make to that disease what you call it? If the injection of hydrochloric acid solution will destroy germ life and cure disease, what difference does it make whether we identify the germ or not? Identification of the germ will make the treatment no more efficacious.

Another point: We do not know, yet we assume that we have a rather comprehensive understanding, at least in a relative way, about the character of germs that invade various tissues: but the information we now have compared with what will be known in the future amounts to but little. I have had hundreds of tissue examinations made, and hundreds of cultures have been tried, but no information was obtained that pointed to any definite treatment. We know practically nothing yet in regard to the germs that invade the rectal tissues. The treatment I have mentioned is not offered as a panacea. What is the purpose of medicines? What is the purpose of surgery? Is it not to cure disease and relieve distress in whatever form it may be found? If patients having infections about the anorectal region can be cured by the injection of hydrochloric acid, what difference does it make whether the causative germ can be identified or not? It would require much research to know the cause of this ulcer and its specific treatment.

As I have stated on former occasions, all the infectious diseases that involve the anorectal region, except malignancy, polypi and stricture, are secondary to infection higher in the alimentary canal.

Whenever there is a mucous or cutaneous surface that is diseased with an open ulcer, we are merely seeing the end of the flame, the fire is beneath. The reason why hydrochloric acid cures is that it reaches the fire, we are no longer looking at the end of the flame. Local applications are not effective in treating such lesions because the primary source of the trouble is under the surface, and it is to the diseased tissue here that remedial agents must be applied.

Serum Treatment of Disease.—Spencer emphasizes the fact that the present chief objection to intravenous serotherapy is the possibility of the occurrence of an acute anaphylactic reaction even before the injection is completed. A physician may give thousands of intravenous serum treatments with few or no consequences, but once he has experienced the clinical picture presented by the sudden collapse of a patient almost into, or actually into, death itself, he will hesitate long before inviting in any way a possible repetition of such an event. . It is the shock type of reaction which leads even enthusiastic advocates of intravenous serum medication to admit that the slower routes of administration are preferable if satisfactory therapeutic results may thereby be attained.

Intra-Uterine Pregnancy After Operation for Bilateral Tubal Pregnancy.—The case cited by Zangemeister is said to be the second on record. A woman, aged 24, was operated on in 1925 for a left tubal pregnancy. The tube was removed. In 1926 she was operated on for right tubal pregnancy. Tube and ovary were removed. Now she was two months pregnant in utero. She aborted and placental tissue were verified microscopically in the uterine contents.

WOMAN'S AUXILIARY NOTES

Woman's Auxiliary, Perry County Medical Society Meets.

June 8—The Perry County Medical Auxiliary met in its regular May session at the home of Mrs. J. S. Gilbert. Miss Myres spoke on the subject of Public Health Work in Perry County. Following a very interesting program new officers for the ensuing year were elected. The meeting was closed with delightful refreshments served by the hostess.

The regular June meeting of the Auxiliary will be held in the Sunday School room of the Presbyterian church, Monday, June 11, at 7:30 p. m. At this meeting the newly elected officers will be installed.

June 11—Monday evening, at the Presbyterian church the Ladies' Auxiliary of the Medical Society met and a very interesting program was given and officers installed. Mrs. R. L. Collins, outgoing president had charge of the program. The meeting was opened with "America." Prayer by Mrs. R. L. Goad. Mrs. Ray and Mrs. Senter delighted the Auxiliary with beautiful solos with Mrs John Furlong at the piano.

A unique feature of the program was a whistling solo by Mrs. G. B. Wheeler. An interesting reading was given by Mrs. Oscar Combs. The officers were installed by means of the Caduceus March led by Miss Sarah Boggs who heralded the new officers to their respective seats. They are:

President—Mrs. J. S. Gilbert.
1st. Vice-President—Mrs. B. G. Wheeler.
2nd. Vice-President—Mrs. J. M. Ray.
Secretary and Treasurer—Mrs. N. G. Riggins.
Assistant Secretaries—Mrs. Wilbur Davis and Mrs. R. L. Collins.
Chairman of Program Committee—Mrs. J. P. Boggs

After the installation of officers a delicious supper was served

Woman's Auxiliary, Jefferson County Medical Society Meets.

The annual meeting of the Woman's Auxiliary of the Jefferson County Medical Society was held at the Kentucky Hotel, May 16, 1928, with Mrs. Hugh N. Leavell, president, presiding.

Reports were read by the secretary, Mrs. D. A. Bates and the treasurer, Mrs. Geo. Leachman. Mrs. Leavell then gave her splendid report

A report of the Nominating Committee was read by Mrs. W. F. Boggess, Chairman.

Music was furnished by the Steedman Academy. Luncheon was served.

Election of officers followed with an address by the newly elected president, Mrs. G. A. Hendon. The new officers are:

President—Mrs. G. A. Hendon.
1st. Vice-President—Mrs. Harry Davidson.
2nd. Vice-President—Mrs. J. K. Freeman.
3rd. Vice-President—Mrs. W. A. Keller.
4th. Vice-President—Mrs. P. E. Blackerby.
Secretary—Mrs. D. A. Bates.
Treasurer—Mrs. G. C. Leachman.
Parliamentarian—Mrs. I. A. Arnold,

The meeting closed with a beautiful story told by Mrs. W. C. Dugan of Shelbyville.

NEWS ITEM

Mixing business with pleasure, Dr. and Mrs. T. M. Dorsey have just returned to Louisville from a trip to New York, where they were guests of Charles C. Foster, former city editor of the old Louisville Herald and erstwhile jailer of Jefferson county, and attended the opening of the New York Medical Center, the largest in the world.

Charley Foster, according to Doctor Dorsey, has a domicile and Japanese garden on the roof of The Maclane, a lofty Central Park apartment building, one of the most secluded pieces of aerial real landscape gardening in Gotham, with dwarfed foliage, stone lanterns, rock work and fountains all in the best Nipponese manner.

Twenty Stories High.

Speaking of the medical center, Doctor Dorsey said:

"Towering on the northern tip of Manhattan, its base covers twenty acres from One Hundred and Sixty-third street to One Hundred and Sixty-ninth street, from Broadway to the Hudson river. Twenty-two stories measure its majestic height; twenty million dollars have already gone into its construction and equipment; twenty years it has been planning; this year it stands completed, the greatest monument to medical progress in the world. On this single plot of ground will operate practically all the Manhattan medical institutions. All the ills that human is heir to can be treated in one great clearinghouse by a group of specialists. Everything known about medicine is centralized with three-fold purposes.

First—To give the bewildered sick man a modern substitute for the family physician.

Second—To enable the specialist to work with other specialists, co-ordinating his research with the discoveries of his colleagues.

Third—To train doctors, dentists, nurses and pharmacists together as a working unit in the presence of situations which will constitute their life work.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 8, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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Annual Meeting, Richmond, September 10, 11, 12, 13, 1928

COUNTY SOCIETY REPORTS

Third District: The Third District Medical Society met at the Helm Hotel for luncheon at 1 p. m., Wednesday, May 30th, there being 22 doctors present. Following the luncheon the meeting adjourned to the assembly room of the hotel where during the afternoon some 30 doctors came and went.

Reports of cases:

C. E. Francis reported a case of a young man 21 years of age who took 8 oz. of Elix. Bromides (Peacock) between 3 and 8 p. m. The period of marked somnolence lasted for four days when he developed the evidence of a toxic nephritis and died at the end of 6 days after this rather large dose (960 gr) as the result of the nephritis.

H. M. Meredith, Scottsville, reported a case of so-called asthma in a 7 months old child which on x-ray examination proved to be a case of persistent thymus. Dr. Meredith exhibited the x-ray films which very clearly demonstrated the appearance of the thymus gland and reported that he had already given the first x-ray treatment for the relief of the condition.

B. S. Rutherford reported a case of obstruction in the esophagus in a man 63 years of age with a history of five years duration. The x-ray films suggested the existence of a diverticulum of the esophagus. It was agreed that the patient should be examined by some one trained in the use of the esophagoscope. Dr. Rutherford also exhibited a negro man, aged 36, who eight years ago had a marked break in compensation in the heart, with dyspnoea, marked general oedema, etc. Under treatment the man was well for 6 years when 2 years ago he suffered another break in compensation as a result of over exertion. He was again relieved by rest and digitalis and has been practically well for the last year and half.

Jno. H. Blackburn reported a case of tuberculosis of the peritoneum with the abdominal focus apparently in the Fallopian tubes. There was a large quantity of free fluid in the peritoneum, the turbercles found over both cornua of the uterus, both layers of the broad ligament, over several feet of the ilium, on the anterior and posterior layers of the mesentery, about the appendix, the caput, over the parietal peritoneum, of practically all of right lower half of the abdominal wall, over an extensive part of the omentum and transverse colon. This patient after considerable nausea and vomiting for some three days bgan to improve and at this time, five weeks after operation, is sitting up and apparently free of any peritoneal involvement.

These different case reports were discussed by all of the doctors present.

W. A. Weldon, Glasgow, read a paper on "Headache Due to Ocular Disturbances," and O.

N. Bryan, Nashville, read a paper on the "Treatment of Advanced Heart Failure." These papers were discussed by the different doctors.

W. S. Leathers, Nashville, addressed the doctors on "The Profession, Public Health and the Public," which was very much enjoyed

JNO. H. BLACKBURN, Secretary.

Henderson: By invitation of Dr. James H. Letcher, the following physicians of Henderson, Ky., were his guests at a six o'clock dinner at the church house of the First Presbyterian Church of this city: Drs. W. A. Quinn, M. Y. Marshall, L. Champion, Silas Griffin, G. W. White, J. O. Strother, E. L. Busby, C. R. Tanner, J. C. Moseley, Peyton Ligon, W. V. Neel, McIver, F. C. Campbell, L. C. Gatewood of Chicago, Ill., and Dr. J. H. Letcher, host.

A royal feast had been prepared of which those present did ample justice. It was an enjoyable occasion, and a rising vote of thanks was extended the host.

After the feast, Dr. L. C. Gatewood gave an interesting and instructive talk on "Referred pain of the chest and abdomen." It was thoroughly enjoyed by all. The Henderson County Medical Society was then called to order by Vice-President Dr. G. W. White. A motion was made and carried, asking the State Board of Health to hold a Trachoma Clinic in this city at their convenience. The society then adjourned, and each member personally thanked Dr. Letcher for the good time they had enjoyed.

PEYTON LIGON, Secretary.

Laurel: The Laurel County Medical Society met this date for the election of officers and the following were elected:

President—G. S. Brock.
Vice-Pres.—J. W. Crook
Secretary-Treasurer—Oscar D. Brock.
Delegate—G. S. Brock.
Board of Censors—H. V. Pennington, William Johnson and J. W. Crook.

The following paid dues: G. S. Brock, J. W. Crook, H. V. Pennington, Wm. Johnson, J. I. Smith and J. B. Mason.

OSCAR D. BROCK, Secretary.

Perry: The Perry County Medical Society at its regular meeting passed the following memorial resolutions:

Dr. W. E. Ray, our friend and brother practitioner, who has been practicing medicine since his graduation, thirty years ago, has during that period been actively engaged in the practice of his profession until five days prior to his death, which occurred Feb. 19, 1928.

He was a patriotic citizen; a loyal member of the Church; always stood for the betterment of the community in which he lived; was an ideal husband and father.

Whereas, the Almighty in His wisdom saw fit to call him from his labor to his reward in Heaven, the Medical Profession in the State of Kentucky and especially in Perry County, has lost an honored colleague, and his clientele, an able counsellor and physician.

Whereas, the community in which he lived has lost one of its supporters for right and justice; the Church, one of its loyal adherents; the country a patriotic and upright citizen; his wife, an ideal husband; his children, a real father. Therefore be it

Resolved: That the Perry County Medical Society extend to the bereaved family and friends their heartfelt sympathy. Be it further

Resolved: That a copy of these resolutions be spread upon the Perry County Medical Society minute book, that a copy be sent to the Kentucky State Medical Journal, a copy to the local papers, and a copy to the family.

Committee on Resolutions:
A. M. GROSS,
B. M. BROWN,
R. L. COLLINS.

Oldham: This being the regular meeting of Oldham County Medical Society, the same met in Dr. Connell's office, with the following present: H. B. Blaydes, President; J. W. Sams, Vice-President, C. L. Hancock, and T. G. Connell.

Upon motion of Dr. Sams, seconded by Dr. Hancock, R. T. Hudson was unanimously elected to membership of this society. Dr. Sams read a paper on Hiccoughs(with the newer methods of treatment involved, which was ably discussed by all present.

J. W. Sams reported the use of liquid collodion in shingles as the main remedial treatment by applying same directly to the patches affected. H. B. Blaydes raised the question of pititalism cause and effect, the census of opinion was that salt was the most outstanding cause.

There being no further business before this meeting it adjourned to meet August 2, 1928.

C. L. Hancock on Typhoid Fever; S. J. Smock on Management of Cataract; J. W. Sams to discuss C. L. Hancock's paper on Typhoid Fever.

S. J. SMOCK, Secretary.

Madison: At the regular meeting of the Madison County Medical Society, held Thursday evening, April 19th, 1928, the committee on arrangements reported that they had a conference with the authorities of Eastern Kentucky Normal School and Teachers College, and decided on Monday, September 10th, as the date for the Kentucky State Medical Association to convene. The College authorities request all meetings to be held on the campus, including exhibits.

J. G. BOSLEY, Secretary.

Scott: Scott County Medical Society met at the Health Office Thursday, June 7, at 2 p. m., with the following present: Drs. H. H. Roberts, W. S. Allphin, H. V. Johnson, C. T. Lancaster, L. F. Heath and D. B. Knox. Meeting called to order by president, H. H. Roberts, minutes of previous meeting read and approved.

A motion was made by Dr. H. V. Johnson, seconded by Dr. Heath, that the society stand behind a pre-natal clinic, and a tuberculosis clinic for this year was also brought up and motion made by Dr. Heath and seconded by Dr. Johnson that this be held.

The following resolutions were unanimously adopted:

No. 1. All members of the Scott County Medivcal Society, shall furnish to the Secretary of the Society, a true list of all patients who have neglected to pay their accounts, or who have not made proper arrangements to pay his or her account for one year or more. The Secretary will furnish to every member of the society a complete list of the names sent in by the members, that the physicians may have such a list for office record.

All members of this Society have the right to refuse to give medical services to any patient who owes other members of this society, and known to the physicians to have the necessary means to pay for medical service, but prefer to beat the physicians out of just compensation in turn and to be listed as dead beats. Nothing in this resolution shall apply to all worthy charity, which every member of this society is willing and ready to give freely at any and all times. The object of this resolution is to protect the members of the medical society, and at the same time to educate the public to a better appreciation of the value of the services of the physicians.

No. 2. A determined desire to put to an end widely known physicians and specialists appearing before juries as experts and alienists in behalf of slayers, pleading "trigger" insanity, is being made by the Scott County Medical Society.

Resolved, That action will be taken against any member of the Scott County Medical Society, who lend their services, or in any way aid such service to notorious slayers in efforts to prove insanity as a defence. The Scott County Medical Society hereby goes on record as being against any expert testimony in criminal trials being arranged and introduced by either defense or prosecution, where the plea of insanity is being introduced to thwart justice by escaping just execution of the laws for crime.

No further business, meeting adjourned.

A. STEWART, Secretary.

Lower Cumberland Valley: For the benefit of the following counties, "The Lower Cumberland Valley Medical and Dental Society" was organized, the following officers were elected, President, W. C. Keene, Burkesville; First Vice President, J. A.Yates, Edmonton; Second Vice President, J. A. White, Tompkinsville; Secretary, W. A. Weldon, Glasgow. First meeting was held at Brukesville, May 16th, with twenty-five people present. An excellent program, well discussed. Next meeting will be held in Glasgow.

C. C. HOWARD.

Franklin: The Franklin County Medical Society met in regular monthly session Thursday, June 7th at 12:00 Noon at the Capital Hotel. The Society was called to order by the President, Dr. C. E. Youmans.

Members present were: Drs. Roemele, Budd, Youmans, Ginn, Darnell, Wallace, C. T. Coleman, Heilman, Travis, Lyon, Patterson, Jackson and Minish.

Minutes of the previous meetings were read and approved.

The committee of which Drs. G. A. Budd, C. T. Coleman and L. T. Minish were members, appointed to prepare suitable resolutions on the death of Dr. Flora W. Mastin made their report by reading the resolutions prepared. These resolutions were unanimously accepted

Dr. Roemele made a motion which was seconded and carried that the memorial meeting in honor of our deceased member, Dr. Flora W. Mastin, be postponed until Thursday evening, June 14th, at 8 o'clock.

A special assessment of $1.00 per member was made to take care of current expenses.

The Secretary had charge of the program for this meeting and presented Dr. Jethra Hancock, of Louisville, Kentucky, Director of the Bureau of Venereal Diseases, under the State Board of Health. Dr. Hancock delivered a most interesting and instructive address on the Early Diagnosis and Treatment of Lues, which was discussed by all present. Many questions were asked and answered by the speaker.

The Society agreed that this program was one of the very best we have ever had, so much so that, Dr. Hancock was requested to come back at an early date and again take charge of the program.

The Society adjourned to the Hotel Dininng room for lunch.

L. T. MINISH, Secretary

BOOK REVIEWS

CLINICAL LABORATORY PROCEDURES. By George L. Rohdenburg, M. D., Director of Laboratories, Lenox Hill Hospital; Consulting Pathologist, Lincoln Hospital, Misericordia Hospital, Beth David Hospital, New York.

The present volume is a collection of laboratory methods which in the hands of the writer have shown their relative simplicity and clinical accuracy over a period of years of actual use. Where several methods are known or are in common use, that one has been arbitrarily selected which practical experience has indicated to be preferred. Some knowledge of laboratory procedure on the part of those using the volume is presupposed. An effort has been made to present concisely such procedures as are frequently undertaken in routine work.

The MacMillan Company, publishers, New York. Price $3.25.

HANDBOOK ON DIET. By Eugene E. Marcovici, M. D. Formerly Assistant to Professor von Noorden in Vienna; Instructor, Post Graduate Hospital, Assistant Attending Physician, Roosevelt Hospital, Out Patient Department, New York.

The vital necessity of proper dieting can hardly be overstressed in our modern strenuous times.

Correct Food preparation is of the utmost importance.

With remarkable freedom from food fads and hobbies, but in a truly practical scientific manner, Dr. Marcovici herein presents every phase of the whole subject, including the various diets in health and disease, special diets, recipes, mineral waters, etc., etc., in such clear, comprehensive fashion that the reader finds his food and diet problems solved on right principles.

To lay readers, nurses, and dietitians, as well as physicians generally, this will prove to be a book of the greatest service.

F. A. Davis Company, Publishers, Philadelphia, Pa. Price $3.50.

THE NEW YORK ACADEMY OF MEDICINE LECTURES ON MEDICINE AND SURGERY. FIRST SERIES—1927.

A series of practical lectures for the general practitioner given at the New York Academy of Medicine during 1927. The subjects presented are ones of paramount interest to both physicians and surgeons, by well recognized clinicians.

A few of the papers may be mentioned as: The Treatment of Cardio Vascular Syphilis; Intestinal Obstructions; Surgical Aspects of Medical Condition; Useful Drugs in Clinical Practice; Pathological Causes of Human Misconduct, etc.

Paul B. Hoeber, Publisher, New York, N. Y. Price $5.00.

ALUMINUM COMPOUNDS IN FOOD. Including a Digest of the Report of the Referee Board of Scientific Experts on the Influence of Aluminum Compounds on the Nutrition and Health of Man. By Ernest Ellsworth Smith, Ph.D., M. D., Fellow and Former President, New York Academy of Sciences, Fellow of the New York Academy of Medicine, etc., etc.

This book is presented not only as a source book which may be looked to for any information on the subject of aluminum in food, but also as an interesting, readable narrative on the entire subject. The original researches of the author are given in detail, with a resume of all the known work on the subject and an epitome of the legal investigations and decisions. Complete, authoritative, and impartial, it is believed this book will be found invaluable to physicians, chemists and others interested in this subject, in which continual and growing interest is being shown.

Paul B. Hoeber, Inc., Publishers, New York.

FOOD, NUTRITION AND HEALTH. By E. V. McCollum, Ph.D., Sc.D., and Nina Simmonds, Sc.D. (Hygiene). Professor and Associate Professor of Chemical Hygiene, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

Published by the Authors, Baltimore, Md. Price $1.50.

THE ULTRA-VIOLET RAYS, Their Action on Internal and Nervous Diseases and Use in Preventing Loss of Color and Falling of the Hair. By Arnold Lorand, M. D. (Vienna) Physician at the Carlsbad Springs, Czecho-Slovakia. Author of "Old Age Deferrew," "Health Through Rational Diet," etc.

F. A. Davis Company, Philadelphio, Publishers.

This book is intended primarily to describe those internal conditions which indicate the use of the ultra-violet ray. A large space has been alloted to the subject of falling hair and its turning gray, and the treatment of this phenomena. One chapter of this book shows how these rays are powerful activators and stimulators of those structures which determine the ondition of all the various organisms and tissues and body functions, as the formation of blood and its circulation, metabolism and the specific action of the nervous system. The book is well written and gives the practical experience of the author in the treatment of various diseases that are amenable to the violet-ray.

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Edited by Henry W. Cattell, A. M., M. D., Philadelphia, U. S. A., with the collaboration of Chas. H. Mayo, M. D., Rochester, Minnesota; Sir John Rose Bradford, M. D., London, England; Hugh S. Cumming, M. D., D. P. H., Washington, D. C.; William S. Thayer, M. D., Baltimore; Frank Billings, M. D., Chicago; A. McPhedran, M. D., Toronto, Canada; James J. Walsh, M. D., New York; John Foote, M. D., Washington, D. C.; Sir Humphry Rolleston, Bt., K.C.B., M. D., D. C. L., Cambridge, England; Sir Donald MacAlister of Tarbert, Bt., M. D., F.R.C.P., Glasgow, Scotland; Seale Harris, M. D., Birmingham, Ala.; Charles D. Lockwood, M. D., Pasadena, California; A. H. Gordon, M. D., Montreal, Canada; T. M. Devine, B. S., Melbourne, Australia; R. Bastianelli, M. D., Rome, Italy; James M. Phalen, M. D., Washington, D. C.

Volume IV. Thirty-seventh Series, 1927.
J. B. Lippincott Company, Philadelphia and London, Publishers.

PRACTICAL DIETETICS FOR ADULTS AND CHILDREN IN HEALTH AND DISEASE. By Sanford Blum, A. B., M. S., M. D. Head of Department of Pediatrics, and Director of the Research Laboratory, San Francisco Polyclinic and Post-Graduate School. Third revised and enlarged edition. F. A. Davis Company, Publishers, Philadelphia.

Newly acquired knowledge of nutrition, which has been tested and found of practical value, has been incorporated in the present edition of this work.

The text has been enlarged by addition of explanatory notes, and altered where changes seemed advantageous.

Dietaries and explanatory notes have been added relating to Autointoxication, Pernicious Anemia, Cancer, Gonorrhea, High Blood-pressure, Indigestible Foods and Combinations, Salt-free and Salt-poor viands.

The chapter on Diabetes has been rewritten. A comprehensive section on Insulin Treatment has been added. Calorie System of Feeding is included; also Tables of Percentage and Calorie values of Foodstuffs.

ADDRESSES ON SURGICAL SUBJECTS. By Sir Berkeley Moynihan, Bart., President of the Royal College of Surgeons of England.

In this volume we are given a collection of addresses and essays by an eminent English surgeon, in which he vividly describes the work of such pioneers in surgery as Hunter, Lister and Harvey. Their work, he shows, laid the foundation for the art and science of surgery. Later and more recent work has shown the relation of surgery to scientific research.

Published by W. B. Saunders Co., Philadelphia and London. 1928. Price, $5.00.

THE COLLECTED PAPERS OF THE MAYO CLINIC AND MAYO FOUNDATION FOR 1927. Volume XIX. Edited by Mrs. M. H. Mellish and H. Burton Logie, M. D.

A splendid collection of papers listing 189 contributors. The material presented is very comprehensive and is such as to be of interest to all practitioners. It is impossible to justly describe thi sbook. Octavo volume of 1330 pages with 412 illustrations. W. B. Saunders Company, Philadelphia and London, 1928. Price, $13.00.

Diphtheria and the Social Milieu.—Diphtheria, de Rudder affirms, is a disease of childhood only for the reason that most persons acquire immunity to the disease early in life, by contact with the causative organism. The age at which immunity is acquired is a question of milieu. The more crowded the conditions in which the person lives, the earlier is immunity obtained; in cities it is acquired by the great majority in the first two years of life. Statistics do not show a greater total morbidity from diphtheria in socially unfavorable conditions, but only a greater child morbidity from the disease. It is estimated that 1 per cent of the children of Berlin are diphtheria bacillus carriers.

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ANNUAL NUMBER

KENTUCKY MEDICAL JOURNAL

UNITED WE STAND DIVIDED WE FALL

Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets.

Subscription Price, $5.00
Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Post office at Bowlng Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8 1917, authorized May 25, 1920.

VOL. XXVI. BOWLING GREEN, KY., SEPTEMBER, 1928 No. 9

THE N. Y. ACADEMY OF MEDICINE
AUG 30 1928
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New—DeLee's Obstetrics

Both text and illustrations received careful revision in the preparation of this FIFTH EDITION. The greatest increase was made in those sections devoted to the work of the general practitioner. Dr. DeLee added many new illustrations, and rewrote completely the chapters on the Treatment of Hyperemesis, Eclampsia, Abruptio Placentae, Placenta Praevia, Ruptura Uteri, Postpartum Hemorrhage, Breech Presentation, and the Operation of Forceps. The chapter on Contracted Pelvis reflects the latest simplified methods of treatment. The chapter on Forceps is much enlarged and contains new illustrations. The illustrations for the new low or cervical cesarean section—laparotrachelotomy—have been improved and increased in number to make the operation more easily learned. The operation of Gottschalk-Portes, temporary explantation of the infected uterus, has been briefly described. The chapters on Embryology and on Puerperal Infections have been revised.

Octavo of 1140 pages, with 1128 illustrations, 201 in colors. By JOSEPH B. DELEE, M. D., Professor of Obstetrics at the Northwestern University Medical School, Chicago. Cloth, $12.00 net.

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KENTUCKY MEDICAL JOURNAL
BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION
Published Under the Auspices of the Council
VOL. XXVI. BOWLING GREEN, KY., SEPTEMBER 1928 No. 9

EDITORIAL

ON TO RICHMOND!

By JAMES A. MILLER, Jr.

Madison County, the cradle of the commonwealth, and its county seat—Richmond—the gateway from the mountains to the Blue Grass, are preparing a welcome for the annual meeting of the Kentucky State Medical Association and the Woman's Auxiliary as warm as that the Indians gave Boone and his companions when more than 150 years ago white man first set foot on Madison County soil.

Of course the warmth of the welcome will be of an entirely different nature. The Madison County Medical Society will play host to the visiting physicians and their wives in a manner known only to true Kentuckians and recognized by true Kentuckians.

For the instruction of the visiting doctors the state organization has provided a program second to none ever given at a meeting of the state society but the Madison County Medical Society realizes that as instructive and inspiring as is the discussion of problems of the medical profession even doctors require amusement and relaxation and has directed its efforts to assuring a most enjoyable time for all.

The comfort of the guests as far as living quarters is concerned could not be improved upon. Through the courtesy of the Eastern Kentucky State Teachers College and Normal School and its president, Dr. H. L. Donovan, the use of new Burnam Hall, the finest and most completely equipped dormitory in the state, has been given to the visitros.

The building is only one year old, it is completely furnished and each pair of connecting rooms has a private bath, each room having a lavatory and built-in dressing table as well as steel beds and comfortable furniture. Rooms in the hall will be furnished without charge and no reservations will be required, plenty of rooms being available for all the doctors and their wives and families who attend. The Teachers College Cafeteria, located in the basement of Burnam Hall, will be kept open for the guests and the meals will be furnished at cost just as they are to the students during the sessions of the school.

The greatest point of interest in Richmond to physicians will be of course the United States Trachoma Hospital, operated by the United States Public Health Service in cooperation with the Kentucky State Board of Health. The hospital has been in operation since October 20, 1926, and has been in charge of Dr. Robert Sory, a recognized authority on trachoma, since the beginning.

An interesting fact about the building which houses the trachoma hospital is that it was bequeathed by Mrs. William Irvine,

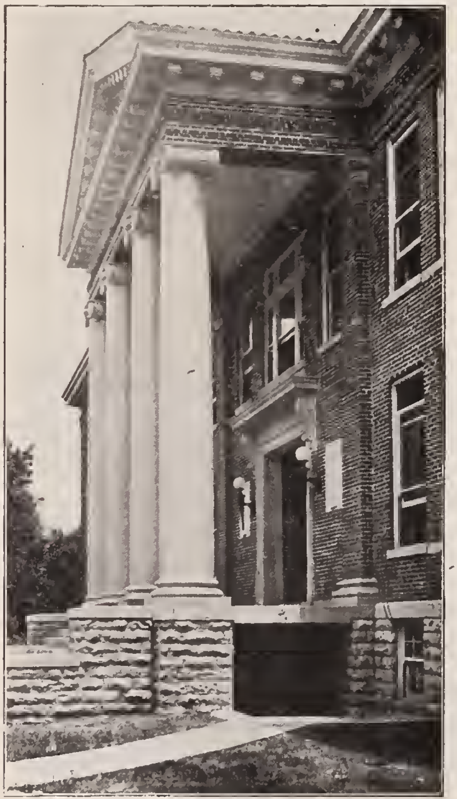
BURNAM HALL

LIBRARY BUILDING

granddaughter of Dr. Ephraim McDowell, of Danville, father of ovariotomy, to be used as a hospital as a memorial to her distinguished grandfather.

Plenty of time will be given between business sessions for the inspection of the hospital and Dr. Sory, who is chairman of the committee on arrangements for the convention, will personally conduct visitors through the hospital, explaining in detail the work being done there.

Richmond and Madison county are rich in historical lore and have many points of interest which every person who comes here will want to see. In the Madison county court house yard stands a rude sandstone slab on which is carved what is undoubtedly the first bit of English writing ever made west of the Alleghany mountains. Squire Boone, brother of Daniel Boone, founder of Boonesboro, in 1770 carved his name and the date on the marker to act as a guide post on the trail which his brother was to follow some years later.



PORTICO OF ROARK BUILDING
Named after Eastern's First President

Historic Boonesboro, the site of the first white settlement west of the Alleghenies, where more "first" things occurred than at any other place in the west, is only a short drive from Richmond, as is Berea with its mountain college which has contributed more to the welfare of Kentucky mountaineers than any other one movement and which is recognized as a model school of its kind.

But for those who have little interest in history and prefer chasing the white pill around the well-known fairways and through the equally well-known rough, the Richmond Golf Club offers its nine hole course for the use of the visitors. This course is an ideal one, probably the best nine-hole course in the state, especially sporty, with plenty of natural hazards, mental as well as physical, offered by Dreaming Creek, which runs through it.

A tournament for the visiting doctors will be arranged and also a tournament for their wives, the time to be decided later. The course will be available for the visitors for play at any time.

The business sessions of the meeting will be held on the Teachers College campus, in the University building, just a few steps from Burnam Hall where the delegates will live and the Woman's Auxiliary meetings will be held in a separate room in the University building or in the spacious foyer in Burnam Hall.

On Wednesday evening, September 12, the

CAMMACK BUILDING, The Training School

VIEWS ON CAMPUS AT EASTERN KENTUCKY STATE TEACHERS COLLEGE

U. S. TRACHOMA HOSPITAL
On property left to the Kentucky State Medical Association by the will of Mrs. William Irvine

feature social event of the meeting will be held. It will be a lawn fete on the campus with an address by a prominent speaker, refreshments, music and dancing in the gymnasium for those wishing to worship at the shrine of the Goddess Terpischore.

FEDERAL BUILDING AND POST-OFFICE AT RICHMOND

Richmond is located on the Louisville and Nashville and the Louisville and Ashland Railroads. It is on United States Highway No. 25, the East Dixie Highway, and is easily accessible from all parts of the state. Busses arrive from Louisville each hour of the day and busses from southeast Kentucky come in several times a day.

For persons living in Western Kentucky wishing to drive to the convention the ideal route is by United States Highway No. 60 to Louisville and Lexington and by United States Highway No. 25, the East Dixie Highway, from Lexington to Richmond. Persons from Ashland and that section of the state may take U. S. 60, the Midland Trail to Winchester and come by way of Boonesboro to Richmond.

The Madison County Medical Society is losing no opportunity of making this one of the most pleasant meetings ever held by the state society. Dr. Sory, chairman of the committee on arrangements; Dr. J. B. Floyd, president; Dr. Joseph G. Bosley, secretary and treasurer, and all members of the local society are working religiously for its success.

Long before Dr. John H. Blackburn, of Bowling Green, president-elect of the state society, is ready to use his gavel to call the first meeting to order, every detail of the meeting will have been worked out and pleasant four days will have been assured the Kentucky State Medical Association.

UNIVERSITY BUILDING CONTAINING AUDITORIUM IN WHICH SESSIONS OF CONVENTION WILL MEET

ANNUAL CONFERENCE OF THE AMERICAN SOCIAL HYGIENE ASSOCIATION

The most common reaction from discussing social hygiene with an individual or group for the first time is "I wish I had known these things years ago. Why does not the State see that every person gets this information?"

The question implies that the Social Hygiene Association of Kentucky is not broadcasting social hygiene information sufficiently. This association is desirous and anxious to reach all of the public with its constructive educational program, but it cannot reach every individual directly because of limited personnel and funds; hence it is endeavoring to reach the masses through the key men and women. One way of gaining the cooperation of influential people is through proper publicity, and this means is also limited. There are hundreds of communities in the State with only one or two persons familiar with our Community Social Hygiene Education program.

Therefore, your active cooperation in disseminating authentic information regarding sex education is essential if every citizen is to become enlightened within a reasonable length of time. We hope that every physician in Kentucky will be sufficiently enlightened as to the importance of this work to take a personal interest in the Annual Conference of the American Social Hygiene Association to be held in Louisville October 11th, 12th and 13th, which will bring to Kentucky internationally, as well at nationally, known speakers of authority on the subject of social hygiene, parent education. It will depend upon you whether or not your community will be aroused to participate actively in this vital health program.

THE SUMMER POST-GRADUATE COURSE

The Kentucky State Medical Association has reasons to be proud of the success of the Summer Post-Graduate Course held in Louisville July 9-14. Over eighty-five doctors were registered from all parts of Kentucky and Indiana, and the comments and criticisms they have made of the two weeks spent in Louisville, are very commendable to Dr. Philip F. Barbour, who instituted and directed this school.

We are sure that those physicians who availed themselves of this splendid opportunity, will go home with a new enthusiasm for better service to their clientele and with an increased knowledge of the newer things in medicine and surgery that are so essential for the progressive physician's armamentarium.

The Kentucky State Medical Association is at all times ready and willing to serve the doctors of the state in every way possible. It is their Association, managed and controlled by a democratic government of represented delegates from every county in the state.

Its policies from its inception have been for the betterment of the medical profession and to develop doctors to be leaders in their community, not only in their profession but in their ideals of good citizenship.

SOUTHERN MEDICAL ASSOCIATION

Our readers will be interested in the meeting of the Southern Medical Association, which will be held this year, November 12 to 15, at Asheville, North Carolina. An increasing number of physicians in Kentucky have been attending this great organization since its first meeting. There is no other post-graduate course in medicine that is more effectively organized.

From Kentucky this year there will be an especially large number motor to Asheville. The roads are excellent and the scenery well worth one's while.

If you have not already joined the Southern Medical Association we would suggest that you send Three ($3.00) Dollars to the Secretary at Birmingham, Alabama, and make reservations for a meeting which you will always remember with delight.

A CORRECTION

In the June issue of the JOURNAL, on page 357, there is the report of a case of Tetanus, with the recovery of the patient, by Doctor E. L. Henderson to the Jefferson County Medical Society. In next to the last paragraph of Doctor Henderson's report, where he stated that if the child had been given a prophylactic dose of fifteen hundred units of antitoxin, he would not have had Tetanus; through a typographical error it is stated that the prophylactic dose was fifteen thousand units. Of course, this is an obvious error, as Doctor Henderson clearly stated that the prophylactic dose is fifteen hundred units.

Doctor Henderson's report of this case was particularly timely, as, at this season of the year, there always occur a number of cases of Tetanus that could be avoided by the prompt use of the fifteen hundred unit prophylactic dose of Tetanus antitoxin.

PLEASE READ REPORTS

In reports on other pages in this issue will be found the Constitution and By-Laws of the Kentucky State Medical Association, as adopted at the Paducah Session in 1902, with all of the amendments that have been made since. Members of the House of Delegates are especially urged to familiarize themselves with it, but, it will be found interesting reading by everyone who receives the JOURNAL. We desire to urge, especially, careful attention of the Report of the Council this year. It presents every activity of the profession and should be carefully studied by every physician in Kentucky.

We are again publishing in considerable detail the financial statements of the Secretary and Treasurer, as audited. In a membership so large and democratic as ours, criticism of financial items will always occur. Such criticism after the meeting is largely futile. The officers of the Association can expend no money, except with the approval of the House of Delegates, and the time to consider expenditures is before and during the meeting. In the Auditor's report there will be found a statement of every penny expended. The House of Delegates will be completely in charge of the activities of the Association, and can stop any expenditure which they disapprove. In the same way they can inaugurate any activity which they consider of benefit to the profession or the people of the State. There is no more democratic organization than the Kentucky State Medical Association, and it is successful only as it expresses the will of its members.

It is suggested that if the county societies find themselves interested in any particular activity of the Association, they consider and talk the matter over fully with their delegates.

The Richmond meeting promises to be one of the largest in point of attendance that has ever been held outside of Louisville. The generosity of the hospitality offered by the Eastern Kentucky Normal School is unexampled in the history of the Association. We feel sure that more doctors and more doctors' wives will register in Richmond than ever before.

RICHMOND COMMITTEES

That the arrangements for the Richmond meeting will be complete is sufficiently indicated by the following list of committees which have been appointed to represent the Madison County Medical Society:

Arrangements Committee—Robert Sory, Chairman, H. G. Sandlin, J. W. Scudder.

Entertainment Committee—J. G. Bosley, Chairman, R. H. Cowley, C. E. Smoot.

Finance Committee—H. G. Sandlin, Chairman, M. Dunn, W. M. Gibson, M. M. Robinson.

Golf Tournament Committee—Robert Sory, Chairman, C. E. Smoot, M. M. Robinson, O. F. Hume.

ORATORY IN SURGERY

The Council has accepted, with sincere regret, the resignation of Doctor Horace Rivers of Paducah, as an orator in surgery. Doctor Rivers has been, for many years, one of the most faithful, loyal, zealous members of the profession . No other physician has been more regular in his attendance upon the State meetings, nor in his contributions to the fine work of his county society. For many years he has responded to the invitations of the Committee on Scientific Work, and has presented some of the best papers at our annual sessions. It is a matter of much regret to his friends that ill health will prevent him from appearing in the position he has so well earned this year.

The Council has selected Doctor Raymond Evans of Louisville, as Doctor Rivers' successor. We feel confident that Doctor Evans will present a splendid oration at Richmond.

STATE BOARD OF HEALTH

At the July meeting of the State Board of Health, the terms of its President, Doctor J. E. Wells and Doctor J. W. Kincaid, another of its veteran members having expired, Governor Sampson appointed Doctors E. M. Howard of Harlan and L. T. Minish of Frankfort, as their successors. Doctor George S. Coon of Louisville was elected President of the Board to fill Doctor Wells unexpired term until January 1st, next, and Doctor Howard was elected for the full term of two years, beginning then.

The profession of the State will regret the loss of the services of Doctors Wells and Kincaid. Both of them have been Presidents of the State Association; both were members of the Council for many years following the reorganization, and were largely responsible in their districts for its success. As members and officers of the State Board of Health they have been faithful and have earned the affection and confidence of the profession.

The JOURNAL extends its best wishes to the new officers.

OFFICIAL ANNOUNCEMENTS

PROGRAM
KENTUCKY STATE MEDICAL ASSOCIATION 1928

1. Urological Problems in General Practice ....Irwin H. Cutler, M. D., Louisville.
2. Present Day Knowledge of Disease of the Rectum and Colon and their Relation to Remote Disorders....Wm. E. Applehaus, M. D., Louisville.
3. The Value of Eye Observations in Fractures of the Skull and Severe Head Injuries........Milus L. Gunn, M. D., Harlan.

Oration in Medicine, W. S. Wyatt, M. D., Lexington.

4. Infant Diet and Hygiene During the First Year........A. A. Shapero, M. D., Louisville.
5. An Analysis of Fractures at the Lynch, Ky., Mines During the Past Five Years........M. H. Todd, M. D., Lynch.
6. A Review and Suggestions on the Prevention and Treatment of Tuberculosis—Geo. Purdy, M. D., New Liberty.
7. Indications for Tonsillectomy........T. H. Singleton, M. D., Bowling Green.
8. Hypertension ....C. C. Turner, M. D., Glasgow.
9. Modern Conception of Contagious Diseases............Jas. H. Pritchett, M. D., Louisville.
10. Treatment of Tuberculosis of the Spine by the Spinal Fusion Method......Wm. M. Brown, M. D., Lexington.
11. Tularemia........C. N. Kavanaugh, M. D., Lexington.
12. The Eye In Relation to Headache......W. W. Weldon, M. D., Glasgow.
13. Practical Surgical Consideration of Hernia............J. Duffy Hancock, M. D., Louisville.
14. The Present Status of Whooping Cough ....J. L. Jones, M. D., Louisville.

Oration in Surgery................Raymond M. Evans, M. D., Louisville.

15. Contract Practice........H. W. Nyce, M. D., Jeff.
16. Peptic Ulcer: Evaluation of Methods of Diagnosis and Treatment..........A. M. McKeithen, M. D., Louisville.
17. Chronic Appendicitis........Guy P. Grigsby, M. D., Louisville.
18. Pelvic Inflammation........E. L. Henderson, M. D., Louisville.
19. Digitalis Therapy........John W. Scott, M. D., Lexington.
20. Version: Indications, Technique............Henry M. Rubel, M. D., Louisville.
21. Fixing the Responsibility for Physical and Nutritional Defects in School Children........F. P. Allen, M. D., Lexington.
22. Nasal Accessory Sinus Infection in Relation to Diseases of the Eye, Ear, Nose and Throat........J. A. Stucky, M. D., Lexington.
23. Management of Normal Labor........A. F. Finley, M. D., Madisonville.
24. Comparisons of Estimated and Actual Disability in Certain Groups of Fractures—"Follow-up" of Cases—Deductions............Ellis Duncan, M. D., Louisville.
25. Treatment of Typhoid Fever............T. T. Gibson, Middlesboro.
26. Symptoms of Sinus Infection Simulating Pulmonary Tuberculosis........H. Kennon Dunham, Cincinnati.
27. (Subject not supplied)........R. W. Bledsoe, M. D., Covington.
28. What the General Practitioner Should Know About Radiation Therapy........W. F. Boggess, M. D., Louisville.

Surgical Section of Ky. S. M. A.

1. Management of Exophthalmic Goitres......Fred Rankin, M. D., Mayo Clinic, Rochester, Minn.
2. A Lantern Slide Demonstration of a Treatment for Fractures..........G. A. Hendon, M. D., Louisville.
3. The Treatment of Post-Operative Hernia ....J. Gant Gaither, M. D., Hopkinsville.
4. Observation on Appendicitis..............Chas. A. Vance, M. D., Lexington.

In addition to the regular scientific program there will be three booths provided in which clinical and x-ray demonstrations, methods of diagnosis and treatment of the following fractures:

Supracondular fracture of the Humerus
Colles
Pott's Fracture of the Ankle

There will be a demonstration on the above from 10:00 a. m. to 12:00 M. and from 2:00 p. m. to 4:00 p. m. on Tuesday and Wednesday in which there will be information, discussion and demonstration.

Serodiagnosis of Tuberculosis.—Klopstock and Neuberg found antigens obtained by alcoholic extraction of tubercle bacilli previously treated with epichlorhydrin to be superior to the saline "extracts" previously used by them . Results with the alcoholic extracts demonstrated that lipoid antibodies are developed in a high percentage of cases of tuberculosis.

OFFICIAL CALL

THE SEVENTY-EIGHTH ANNUAL MEETING OF THE KENTUCKY STATE MEDICAL ASSOCIATION TO BE HELD AT THE UNIVERSITY BUILDING, EASTERN KENTUCKY STATE NORMAL, RICHMOND.

To the Officers and Members of the Component County Societies of the Kentucky State Medical Association:

The Seventy-Eighth Annual Meeting of the Kentucky State Medical Association will convene in the University Buiding, Eastern Kentucky State Normal, Richmond, on Monday, Tuesday, Wednesday and Thursday, September 10, 11, 12, 13, 1928.

THE HOUSE OF DELEGATES

The House of Delegates of the Kentucky State Medical Association will convene in the University Building, Eastern Kentucky State Normal, at 2 p. m., on Monday, September 10, 1928.

FIRST GENERAL SESSION

The First General Session which constitutes the opening exercises of the scientific functions of the Association, will be held in University Building, Eastern Kentucky State Normal, at 9 a. m., Tuesday, September 11, 1928.

THE COUNCIL

The Council will convene at University Building, Monday, September 10, 1928, at 10:30 a. m.

THE REGISTRATION DEPARTMENT

The Registration Department will be open in Burnam Hall, Eastern State Normal, from 10 a. m. to 5 p. m. on Monday, September 10; from 8 a. m. to 5 p. m. on Tuesday and Wednesday, September 11 and 12; and from 8 a. m. to 12 m., on Thursday, September 13, 1928.

COUNCILOR DISTRICTS

FIRST DISTRICT

V. A. Stilley, Benton, Councilor.

Ballard
Caldwell
Calloway
Carlisle
Crittenden
Fulton
Graves
Hickman
Livingston
McCracken
Marshall
Trigg
Lyon

SECOND DISTRICT

D. M. Griffith, Owensboro, Councilor.

Daviess
Hancock
Henderson
Hopkins
McLean
Muhlenberg
Ohio
Union
Webster

THIRD DISTRICT

C. C. Howard, Glasgow, Councilor.

Allen
Barren
Butler
Christian
Cumberland
Logan
Monroe
Metcalfe
Simpson
Todd
Warren-Edmonson

FOURTH DISTRICT

D. E. McClure, Elizabethtown, Councilor.

Breckinridge
Bullitt
Grayson
Hardin
Hart
Larue
Meade
Nelson
Spencer

FIFTH DISTRICT

W. E. Gardner, Louisville, Councilor.

Carroll
Oldham
Franklin
Gallatin
Henry
Jefferson
Shelby
Trimblo

SIXTH DISTRICT

R. C. McChord, Lebanon, Councilor.

Adair
Anderson
Boyle
Green
Marion
Mercer
Taylor
Washington

SEVENTH DISTRICT

V. G. Kinnaird, Lancaster, Councilor.

Casey
Clinton
Garrard
Lincoln
McCreary
Pulaski
Rockcastle
Russell
Wayne

EIGHTH DISTRICT

C. W. Shaw, Alexandria, Councilor.

Boone
Bracken
Campbell-Kenton
Fleming
Grant
Harrison
Mason
Nicholas
Pendleton
Robertson

NINTH DISTRICT

W. L. Gambill, Ashland, Councilor.

Boyd
Carter
Elliot
Floyd
Greenup
Johnson
Lewis
Lawrence
Martin
Magoffin
Pike

TENTH DISTRICT

C. A. Vance, Lexington, Councilor.

Bath
Bourbon
Breathitt
Clark
Fayette
Jessamine
Lee
Madison
Menifee
Montgomery
Morgan
Powell
Rowan
Scott
Wolfe

ELEVENTH DISTRICT

W. M. Martin, Harlan, Councilor.

Bell
Clay
Harlan
Jackson
Knott
Knox
Laurel
Letcher
Leslie
Owsley
Perry
Whitley

CONSTITUTION AND BY-LAWS OF THE KENTUCKY STAE MEDICAL ASSOCIATION ADOPTED AT PADUCAH IN 1902 AS AMENDED

CONSTITUTION

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this organization shall be the Kentucky State Medical Association.

ARTICLE II.—PURPOSE OF THE ASSOCIATION

The purpose of the Association shall be to federate and bring into compact organization the entire medical profession of the State of Kentucky, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge, and to the advancement of medical science, to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interest and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES

Component Societies shall consist of those county medical societies which hold charters from this Association.

Article IV.—Composition of the Association

Section 1. This Association shall consist of Members, Delegates and Guests.

Sec. 2.—Members. The members of this Association shall be the members of the component county medical societies.

Sec. 3.—Delegates. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegate of this Association.

Sec. 4.—Guests. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privileges of participating in all of the scientific work of that session.

Article V.—House of Delegates

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegate elected by the component county societies, and (2) *ex-officio*, the officers of the Association as defined in Article VIII, Section 1, of this Constitution.

Article VI.—Sections and District Societies

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interest of the profession, such societies to be composed exclusively of members of component county societies.

Article VII.—Sessions and Meetings

Section 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

Sec. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

Article VIII.—Officers

Section 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and eleven Councilors.

Sec. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of five years each, the Councilors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

Sec. 3. The Officers of the Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session, and who has not been a member of the Association for the past two years.

Article IX—Funds and Expenses

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Session for publication and for such other purposes as will promote the welfare of the Association and profession.

Article X.—Referendum

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question and be binding upon the House of Delegates.

Article XI.—The Seal

The Association shall have a common Seal with power to break, change or renew the same at pleasure.

Article XII.—Amendments

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS

Chapter I.—Membership

Section 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all the proceedings of the Annual Session, and shall be eligible to any office within the gift of the Association. Provided, that no physician may become a member of any county society unless he signs and keeps inviolate the following pledge:

I hereby promise upon my honor as a gentleman that I will not so long as I am a member of the Kentucky State Medical Association practice division of fees in any form; neither by collecting fees from others referring patients to me nor by permitting them to collect my fees for me; nor will I make joint fees with physicians or surgeons referring patients to me for operation or consultation; neither will I in any way, directly or indirectly, compensate anyone referring patients to me nor will I utilize any man as an assistant as a subterfuge for this purpose.

Sec. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the Annual Session in the respective bodies of this Association.

Sec. 3. No persons who are under sentence or suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of membership shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take part in any of its proceedings, until such time as he has been relieved of such liability.

Sec. 4. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by receiving a badge which shall be evidence of his reference to the roster of the society, he shall have right to all privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

Chapter II.—Annual and Special Sessions of the Association

Section 1. The Association shall hold an annual session, meeting every third year in the city of Louisville, and the other two years at some point in the State fixed at the preceding annual session.

Chapter III.—General Meeting

Section 1. The General Meeting shall include all registered members, delegates and guests, who shall have equal rights to participate in the proceedings and discussions; and except guests, to vote on pending questions. Each General Meeting shall be presided over by the President or in his absence or disability or upon his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations and the entire time of the sessions as far as may be shall be devoted to papers and discussions relating to scientific medicine.

Sec. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved by the House of Delegates.

Sec. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

Sec. 4. No address or paper before the Association, except those of the President and orators shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

Sec. 5. All papers read before the Association shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done, it shall not be published.

Chapter IV.—House of Delegates

Section 1. The House of Delegates shall meet annually at the time and place of the Annual Session of the Association and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations and so as to give delegates an opportunity to attend the other scientific proceedings and discussion so far as is consistent with their duties. But if the business interests of the Association and profession required it may meet in advance or remain in session after the final adjournment of the General Meeting.

Sec. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessments as provided in this Constitution and By-Laws shall be entitled to one delegate. In case the regularly elected delegate or alternate is unable to attend the annual meeting of the Association, the President of the county society may in writing appoint an alternate, who shall have the rights and privileges of a delegate.

Sec. 3. A majority of the registered delegates shall constitute a quorum and all of the meetings of the House of Delegates shall be open to members of the Association.

Sec. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each Annual Session a stepping stone to further ones of higher interest.

Sec. 5. It shall consider and advise as to the material interest of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 7. It shall encourage post-graduate work in medical centers as well as home study and research and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. With these ends in view, five years after the adoption of the By-Laws no voluntary paper shall be placed upon the annual program or be heard in the Association which has not first been heard in the county society of which the author is a member.

Sec. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such manner that not more than one-half of the delegates shall be elected in any one year.

Sec. 9. It shall upon application provide and issue charters to county societies organized to conform to the spirit of the Constitution and By-Laws.

Sec. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies and these societies, when organized and chartered shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

Sec. 11. It may divide the counties of the State into Councilor Districts, and, when the best interests of the Association and profession will be promoted thereby, organize in each district a medical society, to meet midication and members of the chartered county societies and none other shall be members.

When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Association and the Presidents of the county societies of the district shall be the Vice-Presidents of such district societies.

Sec. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committee may report to the House of Delegates in person, and may participate in the debate thereon.

Sec. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

Sec. 14. It shall present a summary of its proceedings to the last General Meeting of each Annual Session, and shall publish the same in the Journal.

Chapter V.—Elections of Officers

Section 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect, provided, however, that when there are more than two nominees the nominee receiving the least numbr of votes on the first ballot shall be dropped and the balloting continue until an election occurs in like manner.

Sec. 2. Any member known to have directly or indirectly solicited votes for or sought any office within the gift of this Association shall be ineligible for any office for two years.

Sec. 3. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

Sec. 4. Nominations for President shall be called for by counties.

Chapter VI.—Duties of Officers

Section 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and so far as practicable, shall visit by appointment, the various sections of the State and assist the Councilors in building up the county societies and in making their work more practical and useful.

Sec. 2. The Vice-President shall assist the President in the discharge of his duties. In the event of his death, resignation or removal the Council shall elect one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond for the trust imposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any real estate belonging to the Association and execute the necessary papers, and shall in general subject to such direction, have the care and management of the fiscal affairs of the Association. He shall pay money out of the Treasury only on written order of the President, countersigned by the Secretary; he shall subject his accounts to such examinations as the House of Delegates may order, and he shall annually render an account of his doings and of the state of funds in his hands.

The council shall be the executive body of the House of Delegates and between sessions shall exercise the powers conferred on the House of Delegates by the constitution and by-laws.

Sec. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the program for and attend all meetings of the Association and of the House of Delegates and he shall keep minutes of their respective proceedings in separate record books. He shall charge upon his books the assessemnts against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him. He shall be custodian of all record books and papers belonging to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as secretary of the Committee on Scientific Work. He shall be editor of the KENTUCKY MEDICAL JOURNAL. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient it is desirable that he shall receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Association for re-organization and for the outlining of the work for the ensuing year. At this meeting it shall elect a Chairman and Secretary and it shall keep a permanent record of its proceedings. It shall through its Chairman, make an annual report to the House of Delegates at such time as may be provided, which report shall include an audit of the account of the Secretary and Treasurer and other agents of this Association, and shall also specify the character and cost of all the publications of the Association during the year, and the amounts of all other property belonging to the Association, or under its control, with such suggestions as it may deem necessary. In the event of a vacancy in any office the Council may fill the same until the next annual election.

Sec. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each Annual Session of the House of Delegates. The necessary traveling expenses incurred by Councilor in the line of his duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expenses in attending the Annual Session of the Association.

Sec. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates of the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline effecting the conduct of members or of a county society upon which appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

Sec. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

Sec .5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Association and shall have authority to appoint such assistants to the editors as it deems necessary. It shall manage and conduct the KENTUCKY MEDICAL JOURNAL, which is the organ of the Association, and all money received by the JOURNAL, the Council or any officer of the Association, shall be paid to the Treasurer of the Association on the first of each month.

Sec. 6. All reports on scientific subjects and all scientific discussions and papers heard before the Association shall be referred to the KENTUCKY MEDICAL JOURNAL for publication. The editor, with the consent of the Councilor for the District in which he resides may curtail or abstract papers or discussions, and the Council may return any paper to its author which it may not consider suitable for publication.

Sec. 7. All commercial exhibits during the annual session shall be within the control and direction of the Council.

CHAPTER VIII.---COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Medical Education.

A Medico-Legal Committee.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members of which the President-elect shall be a member and Chairman, and the Secretary shall be a member and Secretary, and shall determine the character and scope of the scientific proceedings of the Association, subject to the provisions or the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adherred to by the Association as nearly as practicable.

Sec. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with the profession and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence in local, state and national affairs and elections. Its work shall be done with dignity becoming a great profession and with that wisdom which will make effective its work and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such times as may be arranged during the annual session.

Sec. 4. The Committee on Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

Sec. 5. The Medico-Legal Committee shall consist of three members, one of whom, the Chairman, shall be elected by the Council for five years, and the Secretary and Treasurer shall be the other two members *ex officio.* This committee shall select and fix the compensation for an attorney, who shall act as General Counsel, and if required, additional local counsel. The Association through this Committee shall defend its members who are in good standing against unjust suits for malpractice.

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES.

Section 1.—The assessment of five dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, lists of delegates, and list of non-official physicians of the county to the Secretary of this Association on the first day of January in each year.

Sec. 2. Any county society which fails to pay its assessment, or make the report required, on or before the first day of April in each year, shall be held as suspended, and none of its members, or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

Sec. 3. All motions or resolutions appropriating money, shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates.

Chapter X.—Rules of Conduct

The principles set forth in the Principles of Ethics of the American Medical Association shall govern the conduct of members in their relation to each other and to the public.

Chapter XI.—Rules of Order

The deliberations of this Association shall be governed by parliamentary usage as contained in Roberts Rules of Order, unless otherwise determined by a vote of its respective bodies.

Chapter XII.—County Societies

Section 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall upon application to the House of Delegates, receive a charter from and become a component part of this Association.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made with the aid of the Councilor of the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualifications of its own members, but as such societies are the only portals to this Association, every reputable and legally registered physician who is practicing, or who will agree to practice non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right to appeal to the Council, which, upon a majority vote may permit him to become a member of an adjacent county society.

Sec. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 8. When a member in good standing in a component society moves to another county in the state, his name, upon request shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

Sec. 9. A physician living in or near a county line may hold membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

Sec. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific moral and material conditions of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possibe. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferences shall be unstintingly given to such members.

Sec. 12. At the time of the annual election of officers each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association at least sixty days before the Annual Session.

Sec. 13. The Secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the secretary of this Association, on the first day of January of each year, or as soon thereafter as possible, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

Sec. 14. The Secretary of each county society shall report to the Kentucky Medical Journal full minutes of each meeting and forward to it all scientific papers and discussions which the society shall consider worthy of publication.

Chapter XIII.—Amendments

These By-Laws may be amended by any Annual Session by a two-thirds vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

Angiofibroma of the Appendix.—A man, aged 32, was operated on for symptoms of appendicitis. In the place of the appendix an angiofibroma was discovered. The tumor was lobuated and curled on itself. When stretched out, it had a length of 17 cm. All portions of the vascular system were represented. Nothing that could be definitely recognized as appendicular tissue was found. The clinical symptoms had been caused by torsion of the pedicle of the tumor. It was evident that a torsion of the distal portion of the tumor had occurred at a previous date, but there was nothing in the history to indicate that the earlier torsion had given rise to clinical symptoms.

REPORT OF THE COUNCIL

To the House of Delegates:

Call it what you will—the faulty distribution of physicians; the increased necessity and demand for their trained services; erroneous methods in medical education; over emphasis of the fundamental scientific branches as contrasted with the practical art of medicine; over training of the undergraduate in special branches; the substitution of the commercialized scientific specialist for the humane practitioner of the art of healing—the paramount issue before the medical profession of Kentucky and of the United States, is the supply to the people of our country districts and small towns of medical service. It is essential that this issue be thoroughly studied and fairly met. We must no longer permit it to be side-stepped by the false statement that an attack is being made upon the high standards of modern medical education. It must be clearly understood that the Council on Medical Education of the American Medical Association, has so controlled this whole subject that they have placed its guidance largely in the hands of deans and executive committees composed almost, if not entirely, of alltime professors of the fundamental, purely scientific subjects. As valuable as has been the contribution of such men to scientific research, it must be recognized that most of them do not, and never have, engaged in the practice of medicine, and very few of them actually meet classes and teach undergraduate students.

The practitioners of medicine, versed equally in the art and science of medicine, must resume control of the training of the undergraduate students and must so guide them as to develop a spirit of service to humanity, which will cause them to go where they are needed, rather than locate in the larger cities as specialists as they are now doing. In order to acquaint the profession with the present situation, we are inserting here a table showing the membership of our county societies in 1907 as contrasted with 1928:

First District

	1907		1928
Ballard	23		8
Caldwell-Lyon	22	Caldwell	11
Calloway	20		18
Carlisle	17		8
Crittenden			9
Fulton	14		8
Graves	21		25
Hickman	18		8
Livingston	1		6
Lyon		Lyon	4

	1907	1928
Marshall	11	14
McCracken	36	47
Trigg	10	2
Second District		
Breckinridge	14	
Crittenden	13	
Daviess	65	43
Hancock	4	
Henderson	28	16
Hopkins	15	24
McLean	10	6
Muhlenberg	17	12
Ohio	19	10
Union	27	16
Webster		9
Third District		
Allen	12	10
Barren	21	12
Butler	15	2
Christian	34	34
Cumberland	9	7
Logan	26	16
Metcalfe	11	5
Monroe	17	4
Simpson	10	11
Todd	21	5
Warren-Edmonson	54	13
Fourth District		
Breckenridge		13
Bullitt	16	2
Grayson	21	8
Hardin	28	19
Hart	20	7
Henry	20	
Larue	7	8
Meade	7	2
Nelson	21	11
Oldham	12	
Shelby	18	
Spencer		
Fifth District		
Anderson	13	
Boone	10	
Carroll	12	9
Franklin	20	21
Gallatin		3
Henry		11
Jefferson	214	385
Oldham		10
Owen	11	6
Shelby		14
Spencer		
Trimble	9	
Sixth District		
Adair	15	7
Anderson	13	8
Boyle	15	9
Green	11	5
Marion	20	11
Mercer	10	16
Taylor	8	8
Washington	14	9
Seventh District		
Casey	15	4
Clinton	9	4
Garrard	9	4
Jessamine		11
Lincoln	16	11
McCreary		5
Pulaski	28	9
Rockcastle	9	1
Russell	8	5
Wayne	10	5
Eighth District		
Boone		2
Bourbon	21	16
Bracken	11	9
Campbell-Kenton	65	78
Fleming	15	11
Grant	12	11
Harrison	28	15
Jessamine	11	
Mason	13	10
Nicholas	13	10
Pendleton	15	8
Robertson	3	1
Scott	18	15
Woodford	11	
Ninth District		
Boyd	17	52
Carter		11
Elliott		
Floyd		8
Greenup		7
Johnson		7
Lawrence	2	8
Lewis	4	4
Magoffin		1
Martin		1
Pike	11	17
Tenth District		
Bath	16	5
Bourbon	21	16
Breathitt	5	6
Clark	12	22
Estill	9	10
Fayette	49	90
Jessamine	11	
Knott		
Lee	4	
Letcher	3	
Madison	17	33
Menifee		
Montgomery	6	12
Morgan	7	1
Owsley	5	
Perry		
Powell	12	2
Rowan	10	2
Wolfe	9	
Woodford		3

	1907	1928
Eleventh District		
Bell	13	26
Clay	9	6
Harlan	4	40
Jackson	1	4
Knott		1
Knox	12	11
Laurel	9	8
Leslie		2
Letcher		14
Owsley		1
Perry		33
Whitley	9	28

The increase in Jefferson County from 214 to 385 is to be noted as is that of Campbell-Kenton from 65 to 78 this year and 95 last year. Boyd County has increased from 17 to 52, Fayette from 49 to 90, Harlan from 4 to 40, Perry from no organization at all to 33, Whitley from 9 to 28, Bell from 13 to 26, Pike from 11 to 17. These increases are all in the industrial sections, whether urban or in the coal mining districts. In almost every county having a distinctly rural population there has been a marked decrease in the number of physicians. Counties in which this decrease has occurred are in far better economic conditions than they were in 1907. Practically all of them have larger populations. They all have a better educated citizenship that recognizes its dependence upon its profession. Most of the men who are in these counties now were practising there in 1907.

The Council desires to place this problem squarely before the profession for solution. The only arguments that has, or can be presented against the effectiveness of our plan of medical organizations, is its failure to adequately supply our rural counties with physicians. This was the sole argument supported in favor of the chiropractic bill in the last Legislature. For years the Legislature has made it plain that they will be willing to accept our leadership, if we will offer them a solution of the problem. If we fail to reform ourselves, the enactment of the chiropractic law gives us an indication that its solution will be brought about by those who are wholly untrained in the entire subject, but this indicates sufficiently that if we fail to provide trained medical men, popular demand will cause itself to be provided with untrained care.

It is a pleasure to report to the House that the net balance as of September 1, 1928, is $7,872.23, as compared with $7,609.30 last year; $9,146.10 in 1926; $4,996.07 in 1925, and $1,677.67 in 1924. The investment reserve has been continued at $5,000.00 This favorable financial situation has resulted from a continuance of the advertising income of the JOURNAL, which has enabled us to have a small balance above operating expenses. The two major activities of the Association outside of the routine of its organization, are the publication of the JOURNAL and the medico-legal program and medical law enforcement.

It will be noted that the income of the JOURNAL was $10,235.11, and that the entire expense of its publication was $9,873.22. It is with satisfaction that we compare this with the cost of the JUORNAL in 1906—$5,152.42, when there was a deficit of $1,452.72. The Editor has continued to comply with the policy adopted and readopted by the House, of publishing practically all the articles submitted by County Societies, as well as the proceedings of the Annual Session of the Association. The policy of publishing all papers submitted to the County Societies, is sometimes criticized by those familiar with other scientifc publications, because our JOURNAL is less selective in the character of its essays. We merit and invite such criticism, because that is the policy of the profession which conducts it.

A study of the progress of the profession from year to year, or, even more striking, from decade to decade, as indicated by the pages of the JOURNAL can only afford gratification to our thoughtful members. The JOURNAL is intended to be a cross section of professional opinion in Kentucky, for the month in which it is printed. Viewed from this point, each JOURNAL is a milestone of progress, which indicates that our people today are being given the most effective medical service they have ever had. This is not only no reflection upon our predecessors in the profession, but, it is, indeed, proof that our predecessors built wisely the great organization, for which we are now responsible.

During the year we have received more than usual criticism because of typographical errors. Our printers pay $10.00 a day for each day's delay, and it will be noted that these deductions have been made regularly. Typographical errors are always annoying, but, we make a deduction of 25c for each of them we find, and, while this is no solace to the injury offered, it has been a material aid in creating our surplus. It has been suggested that the JOURNAL be printed by some large metropolitan plant, on the ground that this would increase its typographical excellence and improve its general appearance. This has been tried twice in the history of the JOURNAL, and the only notable change was the increase in expense. The Council will be glad to have the instructions of the House of Delegates on this subject.

For the past six years the Association has cooperated with the State Board of Health in the enforcement of medical practice and other health laws. The House, last year, authorized an expenditure not to exceed $2,400.00, but, fortunately, we were called upon for only $300 of this. Under our unfortunate and clumsy system of court procedure, the constantly changing County and Commonwealth's Attorneys, elected under our partisan and political system, too frequently results in the selection of men who are not sufficiently energetic or interested in law enforcement to effectively enforce the medical and health, or, in fact, any of the other laws of the Commonwealth. Realizing, as physicians do, the vital importance of the enforcement of the health and medical laws, it is natural that irritation will frequently arise amongst them, because of failure in their enforcement. In those sections of the State where physicians have joined with other progressive organizations of citizens in the selection of worthwhile attorneys as court officials there has arisen no complaint. Complaints of evasion of the law come from the poorly organized counties and districts which continue to select these officials, as reward for political service, or, because of the predominating influence of some special interest, and it is apparent that it will be impossible to improve conditions in these sections until public opinion has been educated as to the importance of the selection of competent officials. This year, again, our attorneys have assisted in the preparation of more than 300 cases, and they have been effectively aided by the Commonwealth and County Attorneys in many sections of the State. Again we would report more convictions for violation of health and medical laws than ever before.

We are able to report that the careful control by the medico-legal committee has reduced the cost of attorneys fees, which, for the past year was $1,325.00 as against $2,375.00 for 1927; $2,125.00 for 1926 and $2,625 for 1925. Court costs and expenses for the past year were $220.37 which is contrasted with $562.14 last year, and $205.97 in 1926.

We regret to report that there is no decrease in the number of such unjust blackmailing malpractice suits against reputable members of the medical profession. The Council especially calls to your appreciative attention the very effective work of Honorable Fred Forcht, the General Counsel of this Committee, who has given so generously of his time for many years, for a quite nominal remuneration. It is with great regret that the Council notes the serious illness of Mr. Forcht for several weeks during the year. During this time, however, in spite of the protest of his physicians, he continued to supervise, especially, the work of this Committee, and the fine organization that he has built gave the same excellent service it has heretofore given. The Council is especially gratified at the improvement of Mr. Forcht's health, and is sure it represents the feeling of the entire profession of Kentucky in expressing the wish that his usefulness may be continued for many years. Doctor J. B. Lukins, Chairman of the Committee, has devoted much time and thought to its work, which he has conducted most successfully.

It is very important that physicians, generally, carefully consider the character of such malpractice suits as are being brought. To this end they are urged to read thoughtfully the decisions of the courts published currently in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It is evident from careful study of such cases that there has not been a suit decided against a reputable physician in many years which could not have been prevented, if the legal precautions which should now be known to all of us had been taken at the right time. The whole subject of malpractice procedure has become definitely technical, and, in order to avoid becoming victims of injustice from its operation physicians must acquaint themselves with these procedures, as they do with the other complexities of modern medicine.

Again this year a considerable number of physicians have been convicted in the State or Federal courts for violation of the narcotic or prohibition laws. Acting under court instructions, the Council has, or will, when their penitentiary terms have expired, prefer charges against each of them with the view of revocation of their certificates to practice medicine in Kentucky. The Council finds that the administration of these laws, which are approved by a vast majority of the physicians of Kentucky, has been made unnecessarily irksome to the competent, honest, self-respecting members of the medical profession by their violation by the very small minority who have continued to ignore their plain purposes and provisions. Regardless of individual opinion as to the wisdom of such a law, it is now well known by every physician in Kentucky, and in every possible way the public should be taught, that, under Federal law, narcotic habitues are not considered as having a disease and that they cannot be treated by providing narcotics under any circumstances. It is equally plain that alcohol in any form can only be prescribed *legally* for patients who have actually been examined by, and who are under the treatment of the physician writing the prescription for a definite disease in which such alcoholic medication is indicated. It is with regret that the Council notes the reports of the Federal authorities that they are finding frequently prescriptions. for alcoholic beverages signed by physicians who have not only not examined these patients but, they have not infrequently been issued in fictitious names, and that, in some instances, these prescriptions were filled for the physicians themselves. Such action is a breach of trust that is absolutely inexcusable and any member of our profession who prostitutes the duty imposed upon him by law, of determining whether medicines containing alcohol shall be used in the treatment of disease, deserves no sympathy when he is indicted and imprisoned. The Council desires to repeat again that the officials charged with the enforcement of these laws cannot relax their strict constructions of its provisions, which seem to most of us frequently unnecessarily harsh, until the people have been protected from the class of negligent or soft-headed and soft-hearted physicians who pander to this trade and practice in violation of the law.

During the session of the General Assembly, the attack upon our medical and health laws was renewed more vigorously than ever before. The profession and people have become familiar with the motives of those leading these attacks, and they have been thoroughly discredited by the popular opinion of this State. Were the proponents of this destructive legislation alone in their efforts they would not command a half dozen votes in the two Houses of the General Assembly, but, with their shrewd manipulations and combinations, and promises of patronage, they were able at this session to appear more formidable than ever before. Through this combination, the bill creating a State Board of Chiropractic Examiners was passed. While the medical profession is to be congratulated that it is no longer required by law to assume any responsibilities for the practices of this cult, the record in other states has already demonstrated that the creation of such a separate board of examiners is wrong in principle, and that it eventually requires remedial legislation, which is always difficult to secure.

The responsibility for public health and medical practice had been for many years, wisely, we think, placed by the legislature on the several schools of medicine and the pharmaceutical profession of Kentucky. That these splendidly organized groups have done their work well is indicated by the popular uprising that has defeated destructive legislation through all of these years. It seems a pity that the profession which has so well conducted its public relations should be subject to continuous attacks, when the whole time of its limited official personnel is so tremendously needed in work for which the State has always made inadequate appropriations, as compared with other progressive States. On the other hand, the very viciousness of these attacks has succeeded in moulding public opinion, which has supported the profession most effectively in its work. It is of interest that not a single newspaper in the State supported the proposed legislation that would have placed the State Board of Health under partisan control. In this matter our newspapers unquestionably reflected a practically universal public opinion.

Our State Board of Health has the responsibility for the selection of a very large number of officials. That in no single instance was there any evidence presented of any political influence in the selection of any of these appointees, is the best evidence that no such condition exists.

The attempt is always made to center these attacks on individuals prominent in our work. The profession, of course, realize, and the people must realize, that this is but a blind, and that these professional politicians have repeatedly introduced this ripper legislation with the purpose of securing control of our health organizations, that its appointments may be prostituted for partisan purposes. The profession can only continue to win such victories, so long as it deserves to win them. Members of the House of Representatives and the Senate, and other leaders who supported our efforts should be commended by the profession, and similar progressive Senators and Representatives should be elected for the next General Assembly.

The victory of the profession, however, should be realized as squarely placing upon its shoulders the responsibility for improvement in public health. That the death rate from typhoid fever is being reduced; that diphtheria has been robbed of its victims by the use in children of toxin-antitoxin, and by the early and prompt administration of antitoxin to the victims of the disease; that the death rate from tuberculosis has been reduced sixty per cent; that the preventable infectious diseases are constantly decreasing; is a matter in which every worthy physician takes pride. Larger and more satisfactory incomes are being received by those members of our profession who are qualifying themselves to, and who are, making systematic physical examinations of the apparently well, who are undertaking the dietetic and hygienic management of their patrons, who are immunizing them biennially from typhoid fever, and permanently immunizing the children in their practice from diphtheria, and who are undertaking the sanitary supervision of the homes of the families in their practice, with a view to seeing that they are securing pure drinking water, and have safe and sanitary methods of sewage disposal, and are effectively protected from flies, mosquitoes and other insects. These life saving services, provided by qualified men, are of recognized value to those who secure them, and they are paid for far more gladly and regularly than the purely remedial service of past decades.

The gross death rate continues to be reduced. In this connection, it is important that public attention be focussed on the historical fact that before 1888 anyone who desired to practice any branch of the healing art could do so anywhere. The State was overrun with traveling quacks and empirics, as well as those who were stationery. Newspapers frequently contained more columns of quack advertisements than reading matter. It is important to remind our people and legislators that before 1888 the death rate was practically three times as great as now.

These facts are the best answer to those who would reduce the standard of requirements for those practicing the healing art. This does not, however, mean that there should be no reform in medical education. The Council believes that the under-graduate medical student should be taught both the *art* and *science* of medicine. For the past two decades too much emphasis has been put on the science, and, too frequently the education in the art of medicine has been almost entirely neglected. Too many of our young men are becoming specialists and not being grounded in knowledge of the general practice of medicine. These conditions will never be adequately corrected by the all-time scientific teachers who now control medical education. Our very existence as a profession is threatened unless we assume control and properly regulate medical education so as to insure our people adequate medical service.

The Council is very much gratified at the increase in the number and the improvement in the character of hospitals all over the State. Through our Committee on Hospital Standardization, of which Doctor J. Garland Sherrill is Chairman, we are cooperating with the American Medical Association in its efforts to secure better hospital services for our people.

During the past year there has been a considerable increase in the number of county societies which have held diagnostic clinics along the various lines which have been endorsed in our reports for the last eight years. This has been particularly true in tuberculosis, and no other factor has been of greater assistance in reducing the sick and death rate from this serious disease than these clinics. Careful investigation, extending over many years, has shown that the climate of Kentucky is quite as good as that of any other state for the care of those afflicted with tuberculosis. This has been indicated by the results secured in the splendidly conducted county hospitals in Jefferson and Fayette Counties, and in our very effective State Tuberculosis Sanatorium, Hazelwood, in the suburbs of Louisville. It is unfortunate that there are only 12 free beds in Kentucky for indigents suffering with tuberculosis outside of Jefferson and Fayette Counties. The General Assembly generously and unanimously appropriated $100,000.00 for each of the next two years for the purpose of increasing these facilities for our unfortunates, and, it is to be regretted that the Governor thought it necessary to veto this appropriation, because no additional source of revenue was provided to secure the money. The buildings at the State Sanatorium are in serious lack of repair, and are threatened with serious damage unless these repairs are made adequately and soon. It is of importance that our physicians remember that patients who are able to pay $15.00 a week can be as well treated at Hazelwood as at any other tuberculosis sanatorium in the country.

Numerous diagnostic clinics for crippled children have been held by various societies in cooperation with the Kentucky Crippled Childrens Commission, associated with Rotary and Kiwanis Clubs, Shriners and other similar oragnizations. It is a pleasure to again commend this very effective work under the fine leadership of Miss Marian Williamson, who has so long and effectively served the people of Kentucky. Hundreds of children are being restored to usefulness that had heretofore been doomed to a life of invalidism and suffering.

Many county societies have held Trachoma and other eye, ear and throat clinics for the indigents in their population. Such clinics are under the exclusive control of the county society holding them and they have unquestionably popularized such simple operative procedures, particularly amongst the indigent school children, and have made hundreds of the more fortunate of our people seek similar services. Trachoma is rapidly disappearing. For the first ten years after this work was organized under the leadership of Doctor John McMullen of the United States Public Health Service, anywhere from fifty to one hundred patients were operated on at the various clinics, and it was necessary to establish temporary trachoma hospitals in many points in the State over periods of several years. For the past year, in Doctor Kobert's effective work, it has been rare to find more than a half dozen cases, even in those counties having all-time health departments, who are on the constant lookout for this disease.

We know the profession will take great pride this year in the Irvine-McDowell Memorial Hospital for Trachoma, which is being so well conducted in Richmond. It is noteworthy that this beautiful building and grounds were given to the Kentucky State Medical Association by Mrs. Elizabeth Irvine, as a memorial to Ephraim McDowell, the immortal "Father of Ovariotomy." The State Association has loaned it to the State Board of Health, which is jointly financing the conduct of the hospital with the United States Public Health Service, the latter providing one of its accomplished surgeons as the officer in charge of the institution. It is hoped that every physician in attendance will inspect this splendid institution, and will see Doctor Sory's demonstration of the methods used in the diagnosis and treatment of this disease.

We note with interest the creation of all-time health departments in Bell, Trigg, Bullitt and Ohio Counties, in addition to those heretofore reported. Nearly half the population of the State is now being served by effective all-time health departments. It is evident from the statistics that these departments are developing a scheme of public health education that is decreasing rapidly the sick and death rate from unnecessary preventable causes, markedly reducing the infant death rate, rapidly improving child health so that school attendance is much better, rapidly lowering sick and death rates in the younger adult (from typhoid fever and other filth and degenerative diseases), and developing a system under which a tremendously larger percentage of our population will live to be between 70 and 100 years of age. At the same time that this is being done, these departments are educating our people so that they will be increasingly dependent upon those physicians who are developing themselves as human engineers, able in their offices to detect the slighter deviations from the normal, and the tendencies toward conditions that will, if left untreated, bring about diseases that will incapacitate or kill. In the past, the major problem of the practitioner of medicine was to prevent death from acute or chronic illness. In the future it is going to be to prevent the development of disease, or to remove causes and defects that might produce it far earlier. The people are rapidly realizing this. It is far more essential that the profession do so.

For the past seven years the General Assembly has continued its appropriation for the support of the Bureau of Maternal and Child Health. Under the fine leadership of Doctor Veech and her associates in this Bureau, with the splendid cooperation of the entire profession throughout the State, the maternal death rate has been reduced practically a third, and infant mortality almost a half. This is the best answer to the critics of the Sheppard-Towner legislation, which has always met and merited the unanimous approval of this Association. Due to a total misconception of its aims and purposes, and to other recognized causes which it is hardly necessary to mention here, the Federal Sheppard-Towner appropriation will be permitted to expire June 30, 1929. Our people and the Legislature recognized so fully the necessity for continuing this constructive work that the appropriation for this purpose was passed unanimously by both Houses, but, was unfortunately vetoed by the Governor. This will mean the loss of about two-fifths of the activity and personnel of the Board of Health for the fiscal year beginning July 1, 1929, and will throw a greatly increased responsibility on the medical profession and health departments in the several counties of the State. Those counties with all-time health departments will be prepared to meet this responsibility in part. To every county in the State, however, it means a real calamity. In this era of progress in public health, Kentucky will be advertised as the only State in the Union which is taking no part in the problem presented by the high death rate amongst its mothers and children. It is confidently expected that this situation will be corrected by the next General Assembly. To this end it is important that the members of the profession should constantly be bringing all these matters to the attention of the public so that they will understand that physicians are interested in public welfare. It is urged that county societies continue to hold public meetings in various sections of each county where the public may be educated in regard to these necessary measures, and that clinics be held at the county societies for the demonstration of prophylactic vaccines for the indigent. If this were done actively in every county it would reduce our sick and death rate to that of other states in which these things are done. It should be constantly emphasized that good roads and good schools will be of value to healthy children and adults.

The financial report by the Secretary and Treasurer is in great detail and we urge that every member, and especially every member of the House of Delegates, read it carefully and thoughtfully.

The Council desires to again emphasize that the JOURNAL has been published at a profit, because of its continued support by our advertisers. The importance of the patronage of these advertisers by our members cannot be given too much emphasis. The value of the JOURNAL to every reader is apparent. This Association guarantees the financial integrity of the advertising columns of the JOURNAL. For these reasons we feel we have a right to ask our members to give our advertisers their patronage; other things being equal.

These same remarks apply to the exhibits at the annual meetings. These exhibitors pay the expenses of the scientific sessions. They are carefully selected from among a large number of applicants by a special committee of the Council and they exhibit the annual improvements in medical and surgical technique in a very effective way. The exhibit this year is particularly interesting, and the Council desires to urge those in attendance to carefully study it.

The Council desires to express its cordial appreciation to those counties which have organized a Woman's Auxiliary. It urges every other county to organize as rapidly as possible. The report of this fine organization indicates that in the few years since the Crab Orchard Meeting, at which it was developed, it has secured a larger membership than this Association did in its first 49 years. Its State officers and the officers of its county organizations have displayed a commendable zeal in its work and the Council asks that it be authorized to make such expenditures as may be necessary to give it every possible aid for the coming year. During the year HYGEIA has received many more subscriptions in the counties where the auxiliaries are organized than ever before. During the coming year an attempt will be made to secure 5000 more subscriptions to this important publication of the profession in Kentucky. The Council urges that in every county the wives, widows, mothers and daughters of physicians be organized into an active club which will be continually doing things for the welfare of the State.

In accordance with the instructions of the House last year, the Committee on Post-Graduate courses was formed with Doctor Philip Barbour as Chairman. Doctor Barbour formulated a splendid post-graduate course, which was announced to the profession and ninety-one physicians were in attendance at the Louisville City Hospital from July 9th to 14th, and certificates were issued them. At the conclusion of the course a meeting of the student physicians was held and resolutions of thanks were passed. Plans are already being inaugurated for next year's course, which will be bigger and better in every way.

The Council has held several sessions during the year, and at the last it was unanimously decided to appropriate $200.00 a month to pay the expenses of additional organization work from the Secretary's office. It is recommended that this appropriation be continued.

The Council desires to again remind the members of the House that they have absolute control of all matters of public policy which affect the practice of medicine and public health in Kentucky. It is the duty of the House of Delegates to instruct its officers exactly how they want this done.

Respectfully submitted,

R. C. McCHORD, M. D.,
Chairman.

AUDITORS REPORT

To the Council of the Kentucky State Medical Association:

Gentlemen: As requested I have made a complete audit of the books and accounts of your Secretary, Dr. A. T. McCormack, and your Treasurer, Dr. W. B. McClure, for the period of September 1, 1927 to and including September 1, 1928.

All rceipts were property accounted for and every item of disbursement is represented by a voucher check signed by the proper officers, and bears the endorsement of the payee.

Every item of receipts and disbursements was followed through the book and found to be charged or credited to the proper account.

The exhibits herewith submitted set forth in detail the financial transactions from several angles and show the true condition of your affairs at this date. The accuracy and system of your records greatly facilitate the audits.

I have also checked the receipts and disbursements, and distribution of funds of the Woman's Auxiliary of the State Medical Association covering period of September 1, 1927 to September 1, 1928 and find them correct as set forth in the several exhibits submitted herewith.

Resfectfully,

B. P. EUBANK.

REPORT OF BUSINESS MANAGER

To the House of Delegates:

The following detailed report gives an account of all the activities of the Journal and a comparison with 1927:

	1927	1928
No. of pages reading matter	711	720
No. of advertising pages	454	527
Editorials	54	49
Scientific Editorials	0	3
Original Articles	198	126
County Society Reports	50	53
Book Reviews	32	53
News Items	63	65
Illustrations	65	53

The usual policy of printing every article, case report and county society proceedings contributed by a member has been adhered to, and only enough material for the next issue has been reserved.

Through the columns of the Journal, every member has the privilege of printing any article, report of research work or even complaints. The Journal is owned, controlled and maintained by the members of the Association.

The Index

Each year the Journal publishes a complete index of every special article or item, official announcements, authors and discussions of articles and County Society reports, also a cross index of the name of every physician who takes part in the authorship of an article or discusses the proceedings. Cross indices are added to make easy reference to any subject of the article.

County Societies

Too few County Societies have been sending in their proceedings, although they are holding their meetings regularly. Society reports are always given preference and are the most interesting and valuable part of the Journal. The office equipment for multigraphing letters is available to any secretary in preparing for their meeting and in sending out programs.

Respectfully submitted,
L. H. SOUTH, M. D.

Reconciliation of the Treasurer's account for period September 1927 to September 1928, viz:

Balance on hand at last report	$10,116.87	
Less Vouchers then outstanding	2,507.57	
Balance agreeing with Secretary's last report		$ 7,609.30
Amount received from Secretary for period		19,377.61
Total		$26,986.91

DISBURSEMENTS

Expense	$19,114.68
Balance September 1, 1928	$ 7,872.23

Reconcilement:

Balance in Second National Bank, Lexington, Kentucky, Treasurer's Account	$11,020.73

Vouchers Outstanding, viz.:

No. 84, June 6, 1921, A. P. Hunt	$ 1.00	
No. 111, January 3, 1922, Dr. V. A. Stilley	6.50	
No. 160, June 30, 1928, Dr. A. T. Mc. Cormack	150.00	
No. 161, June 30, 1928, Dr. L. H. South	109.80	
No. 162, June 30, 1928, Elva Grant	75.00	
No. 163, June 30, 1928, Dr. D. Robert Botkin	5.05	
No. 164, June 30, 1928, W. A. Berry	150.00	
No. 165, June 30, 1928, Ben B. Morris	100.00	
No. 166, June 30, 1928, Chas. C. Mapes	52.50	
No. 167, June 30, 1928, Electric Blue Print Co.	12.25	
No. 168, June 30, 1928, Courier-Journal Job Printing Co.	54.00	
No. 169, June 30, 1928, Franklin Printing Co.	34.00	
No. 170, June 30, 1928, Addressograph Co.	285.00	
No. 171, June 30, 1928, Clarence Neighbors	50.00	
No. 172, June 30, 1928, Times-Journal Publishing Co.	6.50	
No. 173, June 30, 1928, Times-Journal Publishing Co.	506.90	
No. 174, July 30, 1928, Dr. A. T. McCormack	150.00	
No. 175, July 30, 1928, Dr. L. H. South	100.00	
No. 176, July 30, 1928, Elva Grant	75.00	
No. 177, July 30, 1928, Times-Journal Publishing Co.	450.00	
No. 178, August 31, 1928, Dr. A. T. McCormack	150.00	
No. 179, August 31, 1928, Dr. L. H. South	100.00	
No. 180, August 31, 1928, Elva Grant	75.00	
No. 181, August 31, 1928, Times-Journal Publishing Co.	450.00	3,148.50
Balance agreeing with Secretary		$ 7,872.23

Vouchers No. 174, 175, 176, 177, 178, 179, 180, 181 are in the hands of the Secretary to be delivered.

STATEMENT OF ASSETS

Balance in Second National Bank, Lexington, Ky., to the credit of W. B. McClure, Treasurer	$11,020.73	
Less Vouchers Outstanding	3,148.50	
Net Cash Balance September 1, 1928		$ 7,872.23
Louisville Title Bonds in hands of Treasurer, Face Value		5,000.00
Office Furniture, etc. (See Exhibit "C")		761.66
Total		$13,633.89

EXHIBIT "A"

RECEIPTS

Dues from County Societies	$ 8,992.50	
Income of Journal (Exclusive of Investments, etc.)	10,235.11	$19,227.61
Interest on Investments, viz.:		
Interest on Louisville Title Co., Bond No. 3	$ 30.00	
Interest on Louisville Title Co., Bond No. 5	30.00	
Interest on Louisville Title Co., Bond No 8	30.00	
Interest on Louisville Title Co., Bond No. 13	30.00	
Interest on Louisville Title Co., Bond No. 40	30.00	150.00
Total Receipts		$19,377.61
Balance on hand September 1, 1927		7,609.30
Total		$26,986.91

DISBURSEMENTS

STATE MEDICAL ASSOCIATION:

President's Sundries	$ 24.00
Secretary's Salary	1,800.00
Secretary's Stenographer Salary	900.00
Secretary's Stamps and Envelopes	442.24
Secretary's Sundries	822.15
Treasurer's Bond	12.50
Treasurer's Sundries	44.25
Officers, Councilors and Committee Expenses	116.76
Irvine Estate Expense	27.50
Practice Act. Medical Enforcement	300.00
Attorneys' Fees, Medico-Legal Committee	1,325.00
Costs and Expenses, Medico-Legal Committee	220.37

Association Sundries	517.23	
Called House of Delegates Meeting Expense	722.02	
Ripper Bill Fight Expense	620.83	
Post-Graduate Course Expense	34.00	
Owensboro Meeting Expense	1,191.36	
Richmond Meeting Expense	12.25	
Eye, Ear, Nose and Throat Section Expense	109.00	
Total State Medical Association		$ 9,241.46
KENTUCKY MEDICAL JOURNAL:		
Business Manager's Salary	$ 1,200.00	
Business Manager's Sundries	79.39	
Journal Advertisement Collections Paid Woman's Auxiliary, Kentucky State Medical Association	49.84	
Journal Printing	7,448.04	
Journal Postage	251.53	
Journal Sundries	844.42	
Total Medical Journal		$ 9,873.22
Grand Total		$19,114.68
Balance on hand this date		7,872.23
Total		$26,986.91

EXHIBIT "B"

Detailed list of receipts from County Societies from September 1927 to September 1928, compared with incomes of same period last year:

	1927	1928
Adair	$ 45.00	$ 35.00
Allen	50.00	50.00
Anderson	45.00	40.00
Ballard	40.00	40.00
Barren	70.00	60.00
Bath	40.00	30.00
Bell	160.00	130.00
Boone	25.00	10.00
Bourbon	45.00	100.00
Boyd	245.00	265.00
Boyle	55.00	45.00
Bracken	40.00	45.00
Breathitt	40.00	30.00
Breckinridge	65.00	65.00
Bullitt	40.00	10.00
Butler	15.00	15.00
Caldwell	45.00	60.00
Calloway	80.00	95.00
Campbell-Kenton	500.00	405.00
Carlisle	45.00	40.00
Carroll	40.00	45.00
Carter	45.00	55.00
Casey	20.00	20.00
Christian	175.00	180.00
Clark	105.00	115.00
Clay	45.00	30.00
Clinton	20.00	20.00
Crittenden	45.00	45.00
Cumberland	35.00	35.00
Daviess	225.00	220.00
Elliott	5.00	
Estill	45.00	50.00
Fayette	465.00	465.00
Fleming	65.00	55.00
Floyd	35.00	45.00
Franklin	100.00	105.00
Fulton	50.00	40.00
Gallatin	10.00	15.00
Garrard	25.00	20.00
Grant	55.00	55.00
Graves	125.00	130.00
Grayson	55.00	40.00
Green	25.00	25.00
Greenup	40.00	35.00
Hancock		
Hardin	100.00	95.00
Harlan	250.00	200.00
Harrison	75.00	75.00
Hart	50.00	35.00
Henderson	75.00	95.00
Henry	45.00	55.00
Hickman	45.00	40.00
Hopkins	120.00	120.00
Jackson	20.00	20.00
Jefferson	1,840.00	1,992.50
Jessamine	60.00	55.00
Johnson	50.00	35.00
Knott	10.00	5.00
Knox	60.00	55.00
Larue	40.00	40.00
Laurel	40.00	40.00
Lawrence	40.00	40.00
Lee	3.00	
Leslie	10.00	10.00
Letcher	65.00	75.00
Lewis	25.00	20.00
Lincoln	75.00	55.00
Livingston	30.00	35.00
Logan	85.00	85.00
Lyon	25.00	20.00
McCracken	235.00	235.00
McCreary	35.00	25.00
McLean	30.00	35.00
Madison	135.00	170.00
Magoffin	5.00	5.00
Marion	50.00	60.00
Marshall	75.00	70.00
Martin		5.00
Mason	55.00	60.00
Meade	10.00	10.00
Menifee		
Mercer	90.00	80.00
Mouroe	15.00	20.00
Metcalfe	25.00	25.00
Montgomery	60.00	60.00
Morgan	10.00	5.00
Muhlenberg	85.00	75.00
Nelson	60.00	55.00
Nicholas	50.00	50.00
Ohio	45.00	50.00
Oldham	40.00	50.00
Owen	40.00	30.00
Owsley	15.00	5.00
Pendleton	35.00	40.00
Perry	125.00	175.00
Pike	90.00	85.00
Powell	15.00	10.00
Pulaski	65.00	45.00
Robertson	5.00	5.00
Rockcastle	15.00	5.00
Rowan	10.00	10.00
Russell	35.00	25.00
Scott	90.00	75.00
Shelby	70.00	70.00
Simpson	60.00	55.00
Spencer	10.00	
Taylor	45.00	40.00
Todd	35.00	25.00
Trigg	10.00	10.00
Trimble		
Union	50.00	80.00
Warren	175.00	65.00
Washington	45.00	45.00
Wayne	20.00	30.00
Webster	30.00	45.00
Whitley	130.00	145.00
Wolfe	5.00	
Woodford	45.00	15.00
	$9,163.00	$8,992.50

EXHIBIT "C"

Invoice of the property of the Association, September 1, 1928:

Addressograph plates, 5000 complete addressed	$300.00
1 Remington Typewriter	25.00
1 Desk	50.00
1 Typewriter Chair	9.00
1 Filing Cabinet	64.75
Rubber Stamps	9.00
Guide Cards	5.00
1-3 Adding Machine	75.00
1 Electric Fan	18.00
1 Globe Safe with Fixtures	130.00
Total Old Property	$685.75
60% Reduction for Depreciation in Machinery	411.45
	$274.30
1 N. F. Q. Addressograph and Ejector	285.00
2000 1930 Membership Cards	27.00
8000 No. 5 2-cent Stamped Envelopes	175.36
Total	$761.66

EXHIBIT "D"

Secretary's Monthly Balance Sheet, agreeing with books:

September 1. Balance on hand September 1, 1927. $7,609.30

1927-28	Expenses	Collections	Balance
October 1	$1,546.29	$1,506.72	$7,569.73
November 1	3,487.81	2,267.85	6,349.77
December 1	414.79	365.80	6,300.78
January 1	858.25	938.87	6,381.40
February 1	2,879.66	3,588.49	7,090.23
March 1	1,728.29	2,239.03	7,600.97
April 1	1,984.72	1,912.44	7,528.69

May 1	1,850.21	3,061.93	8,740.41
June 1	1,223.66	2,370.37	9,887.12
July 1	1,591.00	1,126.11	9,422.23
August 1	775.00		8,647.23
September 1	775.00		7,872.23
	$19,114.68	$19,377.61	
Balance on hand September 1, 1927.		7,609.30	$26,986.91
Balance on hand September 1, 1928.		7,872.23	
Total Expenses		19,114.68	$26,986.91

EXHIBIT "E"

Collections by Secretary on account of Kentucky State Medical Association, corresponding with checks, deposit slips and receipts, filed:

1927-28	
October 1—To Collections to Date	$ 90.00
November 1—To Collections to Date	135.00
December 1—To Collections to Date	50.00
January 1 To Collections to Date	15.00
February 1—To Collections to Date	1,840.00
March 1—To Collections to Date	1,740.00
April 1—To Collections to Date	1,000.00
May 1—To Collections to Date	2,095.00
June 1—To Collections to Date	1,647.50
July 1—To Collections to Date	380.00
Total for Year	$8,992.50

EXHIBIT "F"

Collections by Editor on account of the Journal, corresponding with checks, deposit slips and receipts filed:

1927-28	
October 1—To Collections to Date	$ 1,416.72
November 1—To Collections to Date	1,982.85
December 1—To Collections to Date	315.80
January 1—To Collections to Date	923.87
February 1—To Collections to Date	1,748.49
March 1—To Collections to Date	499.03
April 1—To Collections to Date	912.44
May 1—To Collections to Date	966.93
June 1—To Collections to Date	722.87
July 1—To Collections to Date	746.11
Total for Year	$10,235.11
Interest on Bonds	150.00
Grand Total	$10,385.11

EXHIBIT "G"

Total membership by Councilor Districts and by Counties for 1928 as compared to that of 1927:

First District—V. A. Stilley, Benton, Councilor.

	1927	1928
Ballard	8	8
Caldwell	9	11
Calloway	16	18
Carlisle	9	8
Crittenden	9	9
Fulton	10	8
Graves	25	25
Hickman	8	8
Livingston	5	6
Lyon	5	4
Marshall	15	14
McCracken	47	47
Trigg	2	2
	168	168

Second District—D. M. Griffith, Owensboro, Councilor.

Daviess	44	43
Hancock		
Henderson	15	16
Hopkins	24	24
McLean	6	6
Muhlenberg	16	12
Ohio	9	10
Union	10	16
Webster	5	9
	129	136

Third District—C. C. Howard, Glasgow, Councilor.

	1927	1928
Allen	10	10
Barren	14	12
Butler	3	2
Christian	35	34
Cumberland	7	7
Logan	17	16
Metcalfe	5	5
Monroe	3	4
Simpson	12	11
Todd	7	5
Warren-Edmonson	31	13
	144	119

Fourth District—D. E. McClure, Elizabethtown, Councilor.

	1927	1928
Breckinridge	13	13
Bullitt	8	2
Grayson	11	8
Hardin	20	19
Hart	10	7
Larue	8	8
Meade	2	2
Nelson	11	11
Spencer	1	
	84	70

Fifth District—W. E. Gardner, Louisville, Councilor.

	1927	1928
Carroll	8	9
Franklin	19	21
Gallatin	2	3
Henry	8	11
Jefferson	359	385
Oldham	8	10
Owen	7	6
Shelby	13	14
Trimble	..	..
	424	459

Sixth District—R. C. McChord, Lebanon, Councilor.

	1927	1928
Adair	9	7
Anderson	9	8
Boyle	11	9
Green	5	5
Marion	10	11
Mercer	18	16
Taylor	9	8
Washington	9	9
	80	73

Seventh District—V. G. Kinnaird, Lancaster, Councilor.

	1927	1928
Casey	4	4
Clinton	4	4
Garrard	5	4
Jessamine	12	11
Lincoln	15	11
McCreary	7	5
Pulaski	13	9
Rockcastle	3	1
Russell	7	5
Wayne	4	5
	74	59

Eighth District—C. W. Shaw, Alexandria, Councilor.

	1927	1928
Boone	4	2
Bourbon	9	16
Bracken	8	9
Campbell-Kenton	98	78
Fleming	13	11
Grant	11	11
Harrison	15	15
Mason	11	10
Nicholas	10	10
Pendleton	7	8
Robertson	1	1
Scott	16	15
	203	186

Ninth District—W. L. Gambill, Ashland, Councilor.

	1927	1928
Boyd	48	52
Carter	9	11
Elliott		
Floyd	6	8
Greenup	8	7
Johnson	10	7
Lawrence	8	8
Lewis	5	4
Magoffin	1	1
Martin		1
Pike	18	17
	113	116

Tenth District—C. A. Vance, Lexington, Councilor.

	1927	1928
Bath	8	5
Breathitt	8	6
Clark	21	22
Estill	9	10
Fayette	86	90
Lee		
Madison	26	33
Menifee		
Montgomery	12	12
Morgan	2	1
Powell	3	2
Rowan	2	2
Wolfe	1	
Woodford	9	3
	187	186

Eleventh District—W. M. Martin, Harlan, Councilor.

	1927	1928
Bell	29	26
Clay	9	6
Harlan	44	40
Jackson	4	4
Knott		1
Knox	11	11
Laurel	8	8
Leslie	2	2
Letcher	13	14
Owsley	3	1
Perry	25	33
Whitley	26	28
	174	174

EXHIBIT "H"

Detailed Statement of Disbursements of W. B. McClure, Treasurer, Kentucky State Medical Association, each made on a Voucher Check signed by Dr. R. Julian Estill, President, Dr. A. T. McCormack, Secretary, and himself, from September 1, 1927 to September 1, 1928.

1927

September 30—Voucher Check No. 1 .... $ 150.00
Dr. A. T. McCORMACK, Secretary, Louisville.
To September salary.

September 30—Voucher Check No. 2 .... 100.00
DR. L. H. SOUTH, Business Manager, Louisville.
To September Salary.

September 30—Voucher Check No. 3 .... 75.00
ELVA GRANT, Bookkeeper, Louisville.
To September salary.

September 30—Voucher Check No. 4 .... 61.80
B. P. EUBANK, Bowling Green.
To auditing books, 1926-27 .... $50.00
To expense from Bowling Green to Louisville and return 11.80

September 30—Voucher Check No. 5 .... 8.00
HERALD-POST CO., Louisville.
To papers at 8c each.

September 30—Voucher Check No. 6 .... 1.00
WHITNEY TRANSFER CO., Louisville.
To 2 boxes expressed to Bowling Green.

September 30—Voucher Check No. 7 .... 25.11
BUSH-KREBS CO., Louisville.
To 5 cuts of Owensboro.

September 30—Voucher Check No. 8 .... 50.00
CHARLES C. MAPES, Louisville.
To writing Minutes of Eye, Ear, Nose and Throat Section.

September 30—Voucher Check No. 9 .... 174.10
FRED FORCHT, Attorney, Louisville.
To services, Jan. 1 to July 1, 1927 .... $150.00
To reimbursement for Court Costs paid in case of Dr. E. N. Powell vs. Randolph Galloway 24.10

September 30—Voucher Check No. 10 .... 50.00
AMERICAN MEDICAL ASSOCIATION, Chicago.
To 2700 inserts of Dr. R. J. Estill.

September 30—Voucher Check No. 11 .... 32.94
TIMES-JOURNAL PUBLISHING CO., Bowling Green.
To Postage on Journals .... $ 1.33
To 2000 Billheads 7.00
To 250 Letterheads and 350 Envs., 4th Dist. 4.25
To 500 Contract Blanks 6.00
To 200 Commercial Exhibits 6.00
To 200 Applications for Space 7.00
To express on Inserts 1.36
$32.94

September 30—Voucher Check No. 12 .... 640.36
TIMES-JOURNAL PUBLISHING CO., Bowling Green.
To 2250 120-P. August Issue $633.64
To 30 Changes 6.00
To 3 M. Envelopes 15.00
To Printing Envelopes 3.20
$657.84
Less 70 errors at 25c each 17.50

September 30—Voucher Check No. 13 .... 50.00
LUDLOW PETTY, P. M., Louisville.
To postage.

September 30—Voucher Check No. 14 .... 128.00
W. R. BONNELL, Louisville.
To 25% Commission on advertisements amounting to $512.00.

October 6—Voucher Check No. 15 .... 25.00
W. H. EDWARDS, Owensboro.
To services as porter and night watchman, Settle Memorial Church.
Approved by Council and Ordered Paid by House of Delegates.

October 6—Voucher Check No. 16 .... 100.00
W. D. CHAMBERS, Treas., Settle Memorial Church, Owensboro.
To use of Church for State Meeting.
Approved by Council and Ordered Paid by House of Delegates.

October 10—Voucher Check No. 17		50.00
CLARENCE NEIGHBORS, P. M., Bowling Green.		
To postage on Journals.		
Approved by Council and Ordered Paid by House of Delegates.		
October 10—Voucher Check No. 18		532.45
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2250 96-P. July Issue	$516.95	
To 40 Changes	8.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To Stamps	.20	
	$542.45	
Less by 40 Errors	10.00	
Approved by Council and Ordered Paid by House of Delegates.		
October 10—Voucher Check No. 19		768.97
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2750 120-P. Sept. Annual Number	$674.00	
To 40 Changes	8.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To Setting 90,668 Ems to 6 pt.	90.67	
	$789.97	
Less by 84 Errors	21.00	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 20		231.65
DR. A. T. McCORMACK, Secretary, Louisville.		
To October Salary	$150.00	
To Sundry Expenses at Owensboro Meeting	81.65	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 21		131.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To October Salary	$100.00	
To Expenses to Owensboro Meeting: R. R. Fare, Hotel and Bus	31.00	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 22		75.00
ELVA V. GRANT, Bookkeeper, Louisville.		
To October Salary		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 23		48.35
MAYME SULLIVAN, Louisville.		
To Honorarium	$ 25.00	
To Expense at Owensboro Meeting	23.35	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 24		27.30
GUNHILD WENNERGREN, Louisville.		
To Honorarium	$ 25.00	
To Expense at Owensboro Meeting	2.30	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 25		32.50
DR. W. B. McCLURE, Treasurer, Lexington.		
To Expense to Owensboro Meeting.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 26		34.55
DR. J. H. BLACKBURN, Councilor, Bowling Green.		
To Expense as Councilor 3rd District.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 27		6.20
STEPHEN P. COMBS, Clerk, Letcher County Court, Whitesburg.		
To Court Costs in case: Dr. W. Edgar Fallis vs. J. H. Collier.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 28		152.47
S. W. BASSETT Co., Providence, R. I.		
To 300 Bangles—"Louisville 1927"	$ 78.00	
To 200 Buttons—"Kentucky State Medical Ass'n."	74.00	
	$152.00	
Insurance	.47	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 29		77.89
ELIZABETH McCORMACK MEMORIAL FUND, Chicago.		
To Expense of Dr. Hedger to Owensboro Meeting.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 30		5.13
MEFFERT EQUIPMENT CO., Louisville.		
To 1000 White Cards, 4x6	$2.43	
To 1000 Flat Drinking Cups	2.70	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 31		153.16
HOTEL OWENSBORO, Owensboro.		
To Hotel Expense, Dr. A. T. McCormack	$94.16	
To Hotel Expense, Dr. Estill	17.50	
To Hotel Expense, Miss Sullivan	15.80	
To Hotel Expense, Miss Wennergren	25.70	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 32		97.71
C. T. DEARING PRINTING CO., Louisville.		
To 750 77th Annual Meeting Programs.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 33		1.10
ALEX J. SCHULTZ, Louisville.		
To 1 Picture Frame.		
Approved by Council and Ordered Paid by House of Delegates.		

October 31—Voucher Check No. 34		266.88
LUDLOW PETTY, P. M., Louisville.		
To 8000 No. 5 Envelopes at $21.92	$175.36	
To 4000 No. 8 Envelopes at $22.88	91.52	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 35		[illegible]
KENTUCKY ACADEMY OF SCIENCE, Lexington.		
To 1 year's dues.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 36		[illegible]
BUSH-KREBS CO., Louisville.		
To 4 cuts.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 37		15.80
OTHO HASKINS, Louisville.		
To Expenses to Owensboro:		
To Room and Board	$10.00	
To Transportation	5.80	
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 38		561.70
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2250 100-P. October Journal	$536.40	
To 40 Changes	8.00	
To Envelopes and Printing	17.30	
	$561.70	
Approved by Council and Ordere Paid by House of Delegates.		
October 31—Voucher Check No. 39		35.00
WOMAN'S AUXILIARY, Kentucky State Med. Ass'n., Louisville.		
To December advertisements collected.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 40		10.00
DR. D. M. GRIFFITH, Owensboro.		
To Expense at Owensboro Meeting.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 41		5.67
BURNAM & GREENLEAF, Richmond.		
To Expense, Telephone and Telegraph Calls.		
Approved by Council and Ordered Paid by House of Delegates.		
October 31—Voucher Check No. 42		27.50
WESTERFIELD-BONTE CO., Louisville.		
To 25 Copies Brief, Elizabeth S. Irvine Estate.		
Approved by Council and Ordered Paid by House of Delegates.		
November 30—Voucher Check No. 43		173.79
DR. A. T. McCORMACK, Secretary, Louisville.		
To November Salary	$150.00	
To Expense to Chicago, A. M. A. Conference of State Secretaries	23.79	
November 30—Voucher Check No. 44		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To November salary.		
November 30—Voucher Check No. 45		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To November salary.		
November 30—Voucher Check No. 46		3.50
E. H. ROEDERER, Louisville.		
To 25 Badges.		
November 30—Voucher Check No. 47		50.00
CLARENCE NEIGHBORS, P. M., Bowling Green.		
To postage for Journals.		
November 30—Voucher Check No. 48		12.50
SAMUEL D. HINES & CO., Bowling Green.		
To Bond—State Medical Association Treasurer—Dr. W. B. McClure.		
December 23—Voucher Check No. 49		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To December salary.		
December 23—Voucher Check No. 50		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To December salary.		
December 23—Voucher Check No. 51		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To December salary.		
December 23—Voucher Check No. 52		3.50
JAMES M. BYRNES CO., Bowling Green.		
To binding Treasurer's Ledger.		
December 23—Voucher Check No. 53		6.50
KOEHLER STAMP & STENCIL CO., Louisville.		
To 2 signature stamps.		
December 23—Voucher Check No. 54		3.60
BUSH-KREBS CO., Louisville.		
To 1 cut.		
December 23—Voucher Check No. 55		519.65
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To Nov. Issue, 2300 104-P.	$559.60	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To 30 Changes	6.00	
	$582.90	
Less by 53 Errors $13.25		
Less by 5 days delay 50.00	63.25	

1928		
January 31—Voucher Check No. 56		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To January salary.		
January 31—Voucher Check No. 57		110.59
DR. L. H. SOUTH, Business Manager, Louisville.		
To January salary	$100.00	
To Expense to Harlan	10.59	
January 31—Voucher Check No. 58		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To January salary.		
January 31—Voucher Check No. 59		74.20
AMERICAN MEDICAL ASSOCIATION, Chicago.		
To 138 6-months subscriptions to Hygeia	$124.20	
Less amount paid by Woman's Auxiliary	50.00	
January 31—Voucher Check No. 60		140.66
BUSH-KREBS CO., Louisville.		
To 34 cuts (State Meeting articles).		
January 31—Voucher Check No. 61		150.00
FRED FORCHT, Attorney, Louisville.		
To services, July 1, 1927-December 31, 1927.		
January 31—Voucher Check No. 62		551.03
MASTER REPORTING CO., Chicago.		
To Reporting Annual Convention of the Ky. State Medical Association	$482.50	
To Traveling expense	61.37	
To postage	7.16	
January 31—Voucher Check No. 63		699.88
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To Deceber Issue-2300 120-P	$638.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To 50 Changes	10.00	
To 34,500 ems 6 pt. (Index)	34.58	
Total	$699.88	
January 31—Voucher Check No. 64		526.10
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2300 92-P. January Journal	$500.80	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To 40 Changes	8.00	
Total	$526.10	
January 31—Voucher Check No. 65		102.20
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 500 Letterheads & 500 Envelopes, President	$ 6.50	
To 250 Letterheads & 250 Envelopes, Pres.-Elect	4.50	
To 500 Letterheads & 500 Envelopes, Treasurer	6.50	
To 500 Letterheads & 500 Envelopes, Medico-Legal	6.50	
To 15000 Letterheads, Secretary	60.00	
To 1000 Annual Report Blanks	18.20	
	$102.20	
January 31—Voucher Check No. 66		300.00
JAMES S. GOLDEN, Attorney, Pineville.		
To attorney fee in case: Will Turner vs. Dr. P. L. Fuson.		
February 29—Voucher Check No. 67		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To February salary.		
February 29—Voucher Check No. 68		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To February salary.		
February 29—Voucher Check No. 69		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To February salary.		
February 29—Voucher Check No. 70		150.00
JAMES S. GOLDEN, Attorney, Pineville.		
To attorney fees in case of Lillie Collett vs. Dr. J. P. Edmonds.		
February 29—Voucher Check No. 71		13.55
BUSH-KREBS CO., Louisville.		
To cuts.		
February 29—Voucher Check No. 72		5.25
DR. W. B. McCLURE, Lexington.		
To expense as Treasurer.		
Approved by Council and Ordered Paid by House of Delegates.		
February 29—Voucher Check No. 73		36.38
DR. V. A. STILLEY, Benton.		
To expense as Councilor of 1st District.		
Approved by Council and Ordered Paid by House of Delegates.		
February 29—Voucher Check No. 74		5.90
DR. H. M. MEREDITH, Scottsville.		
To expense as delegate, Allen County.		
Approved by Council and Ordered Paid by House of Delegates.		
February 29—Voucher Check No. 75		28.50
DR. G. L. THOMPSON, Wickliffe.		
To expense as delegate, Ballard County.		
Approved by Council and Ordered Paid by House of Delegates.		
February 29—Voucher Check No. 76		14.64
DR. J. H. HENDREN, Pineville.		
To expense as delegate, Bell County.		
Approved by Council and Ordered Paid by House of Delegates.		
February 29—Voucher Check No. 77		8.06
DR. A. W. WALDEN, Owingsville.		
To expense as delegate, Bath County.		
Approved by Council and Ordered Paid by House of Delegates.		

February 29—Voucher Check No. 78 .... 31.76
DR. J. A. OUTLAND, Almo.
To expense as delegate, Calloway County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 79 .... 31.76
DR. P. A. HART, Murray.
To expense as delegate, Calloway County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 80 .... 13.95
DR. G. W. RAGAN, Cold Spring.
To expense as delegate, Campbell County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 81 .... 16.58
DR. J. A. Caldwell, Newport.
To expense as delegate, Campbell-Kenton Counties.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 82 .... 12.56
DR. R. LEE BIRD, Covington.
To expense as delegate, Campbell-Kenton Counties.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 83 .... 8.00
DR. R. L. WOODARD, Hopkinsville.
To expense as delegate, Christian County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 84 .... 6.10
DR. I. BROWN, Winchester.
To expense as delegate, Clark County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 85 .... 5.50
DR. B. L. HOLMES, Carrollton.
To expense as delegate, Carroll County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 86 .... 35.81
DR. R. K. GALLOWAY, Bardwell.
To expense as delegate, Carlisle County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 87 .... 2.00
DR. E. B. BRADLEY, Lexington.
To expense as delegate, Fayette County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 88 .... 7.56
DR. W. H. McLEAN, Lexington.
To expense as delegate, Fayette County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 89 .... 5.50
DR. JOHN P. STEWART, Frankfort.
To expense as delegate, Franklin County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 90 .... 33.04
DR. HUGH E. PRATHER, Hickman.
To expense as delegate, Fulton County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 91 .... 5.00
DR. J. B. KINNAIRD, Lancaster.
To expense as delegate, Garrard County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 92 .... 26.00
DR. H. H. HUNT, Mayfield.
To expense as delegate, Graves County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 93 .... 28.00
DR. J. W. NOLAN, Harlan.
To expense as delegate, Harlan County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 94 .... 28.00
DR. W. M. MARTIN, Harlan.
To expense as delegate, Harlan County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 95 .... 28.00
DR. W. P. CAWOOD, Harlan.
To expense as delegate, Harlan County.
Approved by Council and Ordered Paid by House of Delegates

February 29—Voucher Check No. 96 .... 12.00
DR. A. W. DAVIS, Madisonville.
To expense as delegate, Hopkins County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 97 .... 33.79
DR. CHAS. HUNT, Clinton.
To expense as delegate, Hickman County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 98 .... 20.00
DR. W. G. KINSOLVING, Eddyville.
To expense as delegate, Lyon County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 99 .... 29.00
DR. W. S. STONE, Benton.
To expense as delegate, Marshall County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 100 .... 5.20
DR. G. L. JOHNSON, Harrodsburg.
To expense as delegate, Mercer County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 101 .... 7.99
DR. S. E. SPRATT, Mt. Sterling.
To expense as delegate, Montgomery County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 102 .... 27.01
DR. L. P. MOLLOY, Paducah.
To expense as delegate, McCracken County.
Approved by Council and Ordered Paid by House of Delegates.

February 29—Voucher Check No. 103			12.97
DR. E. L. GATES, Greenville.			
To expense as delegate, Muhlenberg County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 104			6.15
DR. A. E. THRELKELL, Wheatly.			
To expense as delegate, Owen County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 105			7.64
DR. J. L. ATKINSON, Campbellsville.			
To expense as delegate, Taylor County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 106			14.00
DR. C. M. SMITH, Dixon.			
To expense as delegate, Webster County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 107			20.00
DR. I. Z. BARBER, Princeton.			
To expense as delegate, Caldwell County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 108			549.70
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To 2300 96-P. Journal, Feb. issue		$520.40	
To Envelopes		15.00	
To Printing Envelopes		2.30	
To Inserting Inserts		5.00	
To 35 Changes		7.00	
		$549.70	
February 29—Voucher Check No. 109			13.66
DR. O. S. KASH, Carlisle.			
To expense as delegate, Nicholas County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 110			29.90
DR. E. E. ARCHER, Paintsville.			
To expense as delegate, Johnson County.			
Approved by Council and Ordered Paid by House of Delegates.			
February 29—Voucher Check No. 111			26.88
DR. C. A. MOSS, Williamsburg.			
To expense as delegate, Whitley County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 112			695.55
DR. A. T. McCORMACK, Secretary, Louisville.			
To March salary		$150.00	
To March expense, Frankfort		545.55	
March 31—Voucher Check No. 113			128.00
DR. L. H. SOUTH, Business Manager, Louisville.			
To March salary		$100.00	
To expense to Frankfort & Lexington, March 7-9:			
Room, meals and garage	$13.00		
To expense to Frankfort, March 12-15; Meals and garage	15.00	28.00	
March 31—Voucher Check No. 114			75.00
ELVA GRANT, Bookkeeper, Louisville.			
To March salary.			
March 31—Voucher Check No. 115			12.58
DR. C. W. SHAW, Alexandria.			
To expense as Councilor, 8th District.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 116			12.28
DR. J. W. MILLER, Irvine.			
To expense as delegate, Estill County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 117			13.60
DR. H. T. MORRIS, Greenup.			
To expense as delegate, Greenup County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 118			2.00
DR. J. M. ENGLISH, Elizabethtown.			
To expense as delegate, Hardin County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 119			11.00
DR. G. G. THORNTON, Lebanon.			
To expense as delegate, Marion County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 120			12.30
DR. JOHN B. FLOYD, Richmond.			
To expense as delegate, Madison County.			
Approved by Council and Ordered Paid by House of Delegates			
March 31—Voucher Check No. 121			5.28
DR. R. J. HAMILTON, Springfield.			
To expense as delegate, Washington County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 122			7.55
DR. A. H. BARKLEY, Lexington.			
To expense as delegate, Fayette County.			
Approved by Council and Ordered Paid by House of Delegates.			
March 31—Voucher Check No. 123			20.00
HERALD PUBLISHING CO., Hazard.			
To 500 copies editorial page.			
March 31—Voucher Check No. 124			7.10
DR. V. A. STILLEY, Benton.			
To reimbursement for telephone calls.			
March 31—Voucher Check No. 125			10.00
LEXINGTON HERALD CO., Lexington.			
To 400 copies of Herald.			
March 31—Voucher Check No. 126			30.00
CHARLES C. MAPES, Louisville.			
To 2 copies—Minutes of House of Delegates—Called Meeting			

March 31—Voucher Check No. 127		1.75
KENTUCKY BOOK MFG. CO., Louisville.		
To binding 1927 Journals.		
March 31—Voucher Check No. 128		49.50
CAPITAL HOTEL, Frankfort.		
To restaurant expense, 2-16-28.		
March 31—Voucher Check No. 129		1.90
J. H. HOGG, Clerk, Letcher Co. Circuit Court, Whitesburg.		
To court costs, case: Dr. Wm. Edgar Fallis vs. J. H. Collins.		
March 31—Voucher Check No. 130		5.81
BUSH-KREBS CO., Louisville.		
To 1 cut.		
March 31—Voucher Check No. 131		201.72
WESTERN UNION TELEGRAPH CO., Louisville.		
To telegrams.		
March 31—Voucher Check No. 132		11.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 500 letterheads & 500 envs., Chair. of Coun.	$ 6.50	
To 300 letterheads & 300 envs., Coun. of 10th District	5.00	
March 31—Voucher Check No. 133		670.30
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2350 120-P. March Journal	$638.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To 50 Changes	10.00	
To Inserting Inserts	5.00	
April 30—Voucher Check No. 134		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To April salary.		
April 30—Voucher Check No. 135		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To April salary.		
April 30—Voucher Check No. 136		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To April salary.		
April 30—Voucher Check No. 137		9.60
OSCAR ALLEN, McHenry.		
To expense as delegate, Ohio County.		
Approved by Council and Ordered Paid by House of Delegates.		
April 30—Voucher Check No. 138		52.61
WESTERN UNION TELEGRAPH CO., Louisville.		
To telegrams in interest of Ripper Bill.		
April 30—Voucher Check No. 139		249.90
SOUTHERN BELL TELEPHONE & TELEGRAPH CO., Louisville.		
To long distance calls in interest of Ripper Bill.		
April 30—Voucher Check No. 140		7.61
BUSH-KREBS CO., Louisville.		
To 2 cuts.		
April 30—Voucher Check No. 141		14.84
WOMAN S AUXILIARY, Kentucky State Medical Ass'n., Louisville.		
To 25 per cent commission on ads amounting to $59.39.		
April 30—Voucher Check No. 142		36.85
ARCH HATCHETT, Clerk, Henderson County.		
To court costs in case: Randolph Galloway vs. Dr. E. N. Powell.		
April 30—Voucher Check No. 143		38.90
LOUIS VISSMAN, Clerk, Jefferson County.		
To court costs in case Starr vs. Dulaney.		
April 30—Voucher Check No. 144		300.00
H. L. JAMES, Attorney, Elizabethtown.		
To attorney fee in case Jesse Frye vs. Dr. J. W. Brandon	$200.00	
To attorney fee in case C. Gray vs. Dr. J. W. Brandon	100.00	
April 30—Voucher Check No. 145		100.00
J. N. SANDERS, Attorney, Stanford.		
To attorney fee in case Fisher vs. D. R. C. McChord.		
April 30—Voucher Check No. 146		100.00
WHEELER & HUGHES, Attorneys, Paducah.		
To attorney fee in cases A. M. Holt vs. Drs. Hahs & Thompson.		
April 30—Voucher Check No. 147		54.40
J. A. GAFF, Clerk, Grayson Circuit Court.		
To court costs in case H. Hatfield vs. Dr. T. M. Nimmo.		
April 30—Voucher Check No. 148		50.00
CLARENCE NEIGHBORS, P. M., Bowling Green.		
To postage for Journals.		
April 30—Voucher Check No. 149		510.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To April issue 2350 88-P.	$481.20	
To 35 Changes	7.00	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To Inserting Inserts	5.00	
	$510.50	
May 31—Voucher Check No. 150		167.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To May salary.	$150.00	
To expense attending West Virginia State Medical Meeting	17.00	
May 31—Voucher Check No. 151		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To May salary.		
May 31—Voucher Check No. 152		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To May salary.		
May 31—Voucher Check No. 153		125.00
J. W. CRAFT, Attorney, Hazard.		
To attorney fee in case of Elam vs. Dr. Botkin.		

May 31—Voucher Check No. 154		20.00
DR. D. R. BOTKIN, Hazard.		
To reimbursement for stenographer's fee in case of Elam vs. Dr. Botkin.		
May 31—Voucher Check No. 155		27.30
H. L. JAMES, Attorney, Elizabethtown.		
To court costs in case Jesse Frye vs. Dr. J. W. Brandon.		
May 31—Voucher Check No. 156		6.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 500 letterheads & 500 envs., Eye, Ear, Nose & Throat Section	$ 6.50	
May 31—Voucher Check No. 157		527.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2350 108-P. May issue	$579.20	
To 3M. envelopes	15.00	
To printing envelopes	2.30	
To 20 changes	6.00	
To inserting inserts	5.00	
	$607.50	
Less by 8 days delay at $10.00 each	80.00	
May 31—Voucher Check No. 158		60.30
LUDLOW PETTY, P. M., Louisville.		
To 8000 No. 5 Envelopes	$175.36	
To 1st payment	60.30	
Balance due	$115.06	
May 31—Voucher Check No. 159		115.06
LUDLOW PETTY, P. M., Louisville.		
To 8000 No. 5 Envelopes	$175.36	
2nd payment (balance due)	115.06	
1st payment	$ 60.30	
June 30—Voucher Check No. 160		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To June salary.		
June 30—Voucher Check No. 161		109.80
DR. L. H. SOUTH, Business Manager, Louisville.		
To June salary	$100.00	
To expense to Richmond and return	9.80	
June 30—Voucher Check No. 162		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To June salary.		
June 30—Voucher Check No. 163		5.05
DR. D. ROBERT BOTKIN, Hazard.		
To Court Costs, case Bert Williams vs. Dr. D. R. Botkin.		
June 30—Voucher Check No. 164		150.00
W. A. BERRY, Attorney, Paducah.		
To attorney fees, case G. T. Barnhill vs. Dr. Bob C. Overby.		
June 30—Voucher Check No. 165		100.00
BEN B. MORRIS, Attorney, Wickliffe.		
To attorney fees, case of G. L. Thompson.		
June 30—Voucher Check No. 166		52.50
CHAS. C. MAPES, Louisville.		
To minutes and discussions of Eye, Ear, Nose & Throat Section meeting, May 25, 1928.		
June 30—Voucher Check No. 167		12.25
ELECTRIC BLUE PRINT & SUPPLY CO., Louisville.		
To 200 blue prints of exhibit space for 1928 meeting.		
June 30—Voucher Check No. 168		54.00
COURIER-JOURNAL JOB PRINTING CO., Louisville.		
To 2M. 1928 Membership Cards & 2 M. 1930 Membership Cards.		
June 30—Voucher Check No. 169		34.00
FRANKLIN PRINTING CO., Louisville.		
To 5 M. schedules for summer Post Graduate Course	$ 27.50	
To 200 certificates	6.50	
June 30—Voucher Check No. 10		285.00
ADDRESSOGRAPH CO., Chicago, Ill.		
To 1 N-F 2 Addressograph	$275.00	
To 1 Automatic Ejector	25.00	
	$300.00	
Allowance on old machine	15.00	
June 30—Voucher Check No. 171		50.00
CLARENCE NEIGHBORS, P. M., Bowling Green.		
To postage for Journals.		
June 30—Voucher Check No. 172		6.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 500 Letterheads and Envelopes, President-Elect.		
June 30—Voucher Check No. 173		506.90
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 2350 84-P. June Journal	$461.60	
To Envelopes	15.00	
To Printing Envelopes	2.30	
To Inserts	5.00	
To 40 Changes	8.00	
To 8698 set 6 pt. Table	15.00	
Total	$506.90	
July 31—Voucher Check No. 174		150.00
DR. A. T. McCORMACK, Secretary, Louisville.		
To July salary.		
July 31—Voucher Check No. 175		100.00
DR. L. H. SOUTH, Business Manager, Louisville.		
To July salary.		
July 31—Voucher Check No. 176		75.00
ELVA GRANT, Bookkeeper, Louisville.		
To July salary.		

July 31—Voucher Check No. 177 TIMES-JOURNAL PUBLISHING CO., Bowling Green. To account of July Journal.	450.00
August 31—Voucher Check No. 178 DR. A. T. McCORMACK, Secretary, Louisville. To August salary.	150.00
August 31—Voucher Check No. 179 DR. L. H. SOUTH, Business Manager, Louisville. To August salary.	100.00
August 31—Voucher Check No. 180 ELVA GRANT, Bookkeepr, Louisville. To August salary.	75.00
August 31—Voucher Check No. 181 TIMES-JOURNAL PUBLISHING CO., Bowling Green. To account of August Journal.	450.00
TOTAL	$19,114.68

EXHIBIT "I"

WOMAN'S AUXILIARY, KENTUCKY STATE MEDICAL ASSOCIATION

RECEIPTS

Gross Dues Received			$ 180.50	
Less Reimbursement for County Dues and Dues Paid in Duplicate		$13.50		
American Medical Association Dues	$80.50			
American Medical Association Dues Paid Twice	2.00	78.50	92.00	
Net State Dues Received				$ 88.50
Gross Receipts from Advertisements, Kentucky Medical Journal (Woman's Auxiliary No.)			49.84	
Commission Paid Counties on Advertisements			12.46	
Net Advertisement Receipts				37.38
Hygeia, American Medical Association, Commission on Subscriptions				36.70
Sundry Receipts				469.40
Total Net Receipts				$ 631.98

DISBURSEMENTS

Southern Medical Association Dues	$ 16.00	
Traveling Expense	28.20	
Stationery, Stamps & Envelopes	195.75	
Secretary's Office Expense	11.21	
Auxiliary Sundries	302.42	
Total Disbursements		553.58
Net Balance		78.40
Bank Balance, National Bank of Kentucky		78.40

Balance in National Bank of Kentucky, Louisville, Treasurer Account		$ 110.64	
Less Outstanding Vouchers: 1928			
Check No. 79, June 28, Mrs. G. C. Leachman, Treas.	$ 3.71		
Check No. 80, June 28, Mrs. Irvin Abell, Treas.	12.00		
Check No. 81, June 29, Mrs. G. C. Leachman, Treas.	.50		
Check No. 82, June 29, Mrs. W. K. West, Treas.	2.00		
Check No. 83, June 30, Mrs. G. S. Brock, Rebate	2.00		
Check No. 84, June 30, Ludlow Petty, Postmaster	12.03		
Total Checks Outstanding		32.24	
Balance Agreeing with Treasurer's Report			78.40

MEMBERSHIP 1928

Allen County	8	McCracken County	15
Breckinridge County	8	Marshall County	9
Daviess County	11	Oldham County	5
Franklin County	12	Perry County	29
Garrard County	7	State at Large	18
Graves County	16	Taylor County (Credit 1)	7
Harlan County	28	Whitley County	15
Jefferson County	107		
Laurel County	5	Total Membership	300

EXHIBIT "J"

Detailed Statement of Receipts and Disbursements of Miss Mary E. Palmer, Treasurer, Woman's Auxiliary, Kentucky State Medical Association from September 1, 1927 to September 1, 1928.

1927		Receipts	Disbursements
Sept. 2—Cash on hand received from Mrs. A. T. McCormack, Sec. and Treas., 1927		$ 469.40	
Sept. 2—Dues		22.00	
State at Large	$ 4.00		
Harlan County	4.00		
Garrard County	3.50		
Jefferson County	1.00		
Perry County	9.50		
Sept. 2—American Medical Association To 1 year's subscription to Hygela.		1.25	
Sept. 22—Dues		3.50	
McCracken County	1.50		
State at Large	2.00		
Oct. 14—Dues Collected at State Meeting		26.00	
Daviess County	8.00		
Breckinridge County	2.00		
Jefferson County	3.00		
State at Large	13.00		

Oct. 14—Dues		8.00	
McCracken County	1.00		
Daviess County	2.50		
Marshall County	4.50		
Oct. 14—Check No. 39, Herald-Post Co. To 59 Copies Sunday Herald.			4.72
Oct. 14—Check No. 40, W. K. Stewart Co. To 1 scrap book and one book.			3.50
Oct. 14—Check No. 41, Meffert Equipment Co. To 1 card guide and tray.			6.21
Oct. 14—Check No. 42, C. T. Dearing Printing Co. To 300 badges, 300 programs			52.25
Oct. 14—Check No. 43, Mrs. V. A. Stilley To expense at State Meeting.			3.85
Oct. 17—Check No. 44, Western Union Telegraph Co. Telegram to Mrs. McReynolds.			.72
Oct. 17—Check No. 45, Mrs. B. H. Parrish, Treas. To rebate due Breckinridge County on dues.			1.00
Oct. 17—Check No. 46, Mrs. A. L. Kincheloe, Treas. To rebate due Daviess County on dues.			4.00
Oct. 17—Check No. 47, Mrs. G. C. Leachman, Treas. To rebate due Jefferson County on dues.			1.50
Oct. 26—Check No. 48, Mrs. Ernest Sullivan, Treas. To Southern Medical Association Auxiliary dues for two counties.			2.00
Oct. 26—Check No. 49, Miss Mary E. Palmer To expense at State Meeting.			24.35
Nov. 1—Kentucky State Medical Association To commission on advertisements in Journal.		35.00	
Nov. 1—Check No. 50, R. Moss & Co., Jewelers, Owensboro To 2 silver vases and postage.			35.35
Nov. 1—Check No. 51, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for new members to date.			21.75
Nov. 1—Check No. 52, Mrs. G. C. Leachman, Treas. To commission due Jefferson County on advertisements in Journal.			8.75
Nov. 16—Dues, Jefferson County		2.00	
Nov. 18—Check No. 53, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 4 members.			1.00
Nov. 19—Dues, Jefferson County		4.00	
Nov. 19—Check No. 54, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 8 members.			2.00
Nov. 21—Dues, Jefferson County		2.00	
Nov. 21—Dues, Cash, Mrs. Keifer		1.00	
Nov. 21—Dues, Allen County		4.00	
Nov 21—Check No. 55, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 13 members.			3.25
Nov. 25—Check No. 56, Mrs. G. C. Leachman, Treas. To rebate due Jefferson County on Keifer dues.			.50
Nov. 25—Check No. 57, Western Union Telegraph Co. Wire to F. V. Cargill, Chicago.			.63
Dec. 1—Check No. 58, State Board of Health To stamps to date.			3.39
Dec. 16—American Medical Association To 1 yearly subscription to Hygeia.		1.50	
Dec. 16—Dues, Jefferson County		38.50	
Dec. 16—Check No. 59, Mrs. G. C. Leachman, Treas. To rebate on dues paid in duplicate.			.50
Dec. 17—Dues, Perry County		1.50	
Dec. 17—Check No. 60, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 76 members.			19.00
Dec. 19—Check No. 61, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 11 members.			2.75
Dec. 22—Dues, Jefferson County		1.00	
1928			
Jan. 1—Dues, Jefferson County		.50	
Jan. 1—American Medical Association Commission on 7 subscriptions to Hygeia.		7.00	
Jan. 1—Check No. 62, W. K. Stewart Co. To 1 scrap book.			1.50
Jan. 10—Check No. 63, C. T. Dearing Printing Co. ......4 To 3000 letterheads, 3000 2c-envelopes, 500 membership cards.			92.00
Jan. 10—Check No. 64, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 3 members.			.75
Feb. 1—Dues		4.00	
Laurel County	$2.50		
Perry County	1.50		
Feb. 6—Check No. 65, Hygeia To 138 6-mos. snbscriptions sent 1928 Legislators.			50.00
Feb. 7—American Medical Association To commission on one 2 year s subscription to Hygeia.		2.50	
Feb. 13—American Medical Association To commission on 138 6-mos. subscriptions to Hygeia.		20.70	
Feb. 15—Dues, Franklin County		5.00	
Feb. 17—Check No. 66, Mrs. Irvin Abell, Treas.			4.50
Feb. 17—Void Check No. 54, returned by Mrs. Abell Dues paid to American Medical Association Auxiliary twice.		2.00	
Feb. 24—American Medical Association Commission on 1 yearly subscription to Hygeia.		1.25	
March 2—American Medical Association To Commission on 1 yearly subscription to Hygeia.		1.25	
March 2—Dues, Cash, Mrs. John P. Stewart		1.00	
March 8—Dues		5.50	
Oldham County	$2.50		
State at Large	3.00		
March 8—Check No. 67, Mrs. John P. Stewart To rebate on dues paid in duplicate.			1.00
March 8—Check No. 68, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 8 members.			2.00

March 12—Dues		2.00	
Jefferson County	1.00		
Franklin County	1.00		
March 12—Check No. 69, State Board of Health To stamps to date.			1.08
March 19—Check No. 70, Mrs. W. K. West, Treas. To Southern Medical Association Auxiliary dues for 10 counties.			10.00
March 29—Dues, Jefferson County		2.00	
March 29—Check No. 71, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 7 members, one for two years.			2.00
April 5—Check No. 72, C. T. Dearing Printing Co. To 3000 letterheads, 3000 2c-envelopes.			87.25
April 25—Dues, McCracken County		5.50	
April 25—Check No. 73, Mrs. O. R. Kidd, Treas. To rebate on dues for two members paid twice.			1.00
April 25—Check No. 74, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 9 members.			2.25
May 1—Kentucky State Medical Association To commission on advertisements in Journal amounting to $59.39.		14.84	
May 2—Dues		16.00	
Graves County	8.00		
Whitley County	8.00		
May 5—Check No. 75, Mrs. Lora Bryant, Treas. To rebate on dues paid in duplicate.			1.50
May 5—Check No. 76, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 29 members.			7.25
May 5—Check No. 77, Mrs. W. K. West, Treas. To Southern Medical Association Auxiliary dues for 2 counties.			2.00
May 8—Dues		12.00	
Harlan County	$10.00		
Perry County	2.00		
May 22—Dues, McCracken County		.50	
May 28—Dues, Jefferson County		.50	
June 15—Dues, Breckinridge County		7.00	
June 23—American Medical Association Commission on 1 yearly subscription to Hygeia.		1.25	
June 26—Dues, Taylor County		3.50	
June 28—Check No. 78, C. T. Dearing Printing Co. To 1000 copies of 1927-1928 Year Book and 1000 catalog envelopes.			158.75
June 28—Check No. 79, Mrs. G. C. Leachman, Treas. Commission due Jefferson County on advertisements in Journal.			3.71
June 28—Check No. 80, Mrs. Irvin Abell, Treas. To American Medical Association Auxiliary dues for 7 counties, 1 county to receive credit for 2 members to balance account for dues paid twice to A. M. A.			12.00
June 29—Dues		2.00	
Jefferson County	1.00		
Whitley County	1.00		
June 29—Check No. 81, Mrs. G. C. Leachman, Treas. To Jefferson County dues paid into State office.			.50
June 29—Check No. 82, Mrs. W. K. West, Treas. Southen Medical Association Auxiliary dues for 2 counties.			2.00
June 30—Check No. 83, Mrs. G. S. Brock To rebate on dues paid twice.			2.00
June 30—Check No. 84, Ludlow Petty, P. M. To stamps to date.			12.03
Total Receipts		$ 738.44	
Total Disbursements			660.04
Balance on hand, National Bank of Kentucky			78.40
		$ 738.44	$ 738.44

ORIGINAL ARTICLES

SOME PRE-MENOPAUSE SYMPTOMS.*

By W. O. Johnson, M. D., Louisville.

Menopause, that dreaded period in the life of women, and experienced by all who live long enough, the period that is determined by the cessation of physiological menstruation, which occurs between the 35th and 50th year, and is arbitrarily taken by most to occur at 45 years of age.

We know that most women consult a physician because they consider their menopause to be abnormal, as determined by signs and symptoms they have observed and been told about. We are all acquainted with the well worn adage that excessive or irregular hemorrhage about the menopause, and any hemorrhage after the menopause, should always make us suspicious of malignant disease of the uterus. We are never justified in treating such a patient without a vaginal examination; if this examination does not reveal anything, an examination under anesthesia is advisable. Dilatation and curettage is indicated to make sure we are not dealing with an early malignancy.

In spite of the general acceptance of these facts, out of 1250 cases entering the Gynecological dispensary of the Louisville City Hospital, during the past eleven months of 1927, there were 9 cases of inoperable carcinoma of the cervix that had been treated previously to entrance into the dispensary.

This striking finding led me to a study of these cases, in the hope that some early signs or symptoms might be found which would lead to an earlier recognition of the conditions and the institution of treatment at a time when a cure is possible.

Conditions associated with or following gestation, pelvic inflammatory diseases, and luetic infections are not included in this group of cases. A careful selection has been made, and only those cases are considered that present abnormal symptoms during the last 10 years of the patients menstrual life, so that the symptoms noted might be attributed to the physiological or pathological changes occurring in the female generative organs at this time.

Let us first consider what is taken to be the average normal menstrual cycle, so that we can ascertain wherein the following cases deviate from the normal.

Menstruation begins at 13 years and occurs regularly every 28 days with a moderate amount of watery, bloody flow that does not contain clots, lasts 2 to 4 days and in about 15% of individuals is associated with pain. Accepting this as an average normal, and disregarding the racial, climatic and other variations which we know to exist, we can say that periods occurring every 21 to 23 days apart, with 1 to 2, or 6 to 8 days, or more, of flow, profuse bleeding with clots, with or without discharge, may be considered in the abnormal group. We may also assume that these cases are more than likely indicative of pathological disorders, either as a result of the general condition or a local pelvic condition. In either case, an investigation and correction is indicated, for such early apparently insignificant and supposedly unimportant symptoms may be the sign post of warning of grave conditions in the future.

With this in mind I wish to take up a brief analysis of the following cases selected from the histories previously mentioned: Carcinoma of cervix (inoperable) 9 cases;; Fibroids of uterus 32 cases; Menopause (vaso motor and neurotic symptoms) without definite pelvic pathology 27 cases; Papilloma of cervix 4 cases; Prolapse of uterus with relaxed vaginal outlet, and cystocele and rectocele 19 cases, making a total of 91 cases, with none of them falling into the group of excluded cases previously mentioned.

One must first take into consideration the type of intellect found among the dispensary patients, and especially their prevalence in visiting the "cure alls" and addiction to home remedies before consulting a physician. We have here a possibility of another step forward in the field of preventative medicine where people at this or any other time of life can be educated to realize the seriousness of symptoms that appear during this pre-menopause period.

In this group of 91 cases all had had some form of treatment before admission to the dispensary, all of the carcinoma cases had been seen by a physician, and in only 4 cases had the diagnosis been made previous to the admission. In one case a vaginal examination had not been made.

The 4 cases of cervical polyps had been told that they were passing through the menopause, and in 14 cases with vasomotor symptoms there had been no vaginal examination previous to admission to the dispensary. However, in practically all of the cases of fibroids a previous diagnosis had been made.

In the following paragraphs a brief analysis of some of the interesting facts obtained from the review of this group of cases will be given. Carcinoma of the cervix occurs on an average of two years later than the other conditions. With the exception of fibroids, there is a greater prevalence of pre-menopause disturbances among white women than among colored women, especially in those cases of prolapsus and neuro-circulatory symptoms.

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*Read before the Cumberland Valley Medical Society.

The average number of children born in cases of carcinoma of cervix are about as high as in the cases with prolapsus, and neuro-circulatory symptoms; also the incidence of miscarriages is about the same; however, in the cases with fibroids one third of the cases were sterile, and the incidence of miscarriages higher.

One notable point in this analysis is the incidence of pain as the initial symptom in the cases of carcinoma and fibroids, and especially the predominance of this pain in the left groin, and in a high proportion of cases the pain radiated either to the back or the leg. This radiating type of pain is distinctly different from the pain of pelvic inflammatory disease.

Bleeding as an initial symptom occurred in only one of these cases of carcinoma, and in this instance the disease was in an inoperable state, although the patient was seen but two weeks after the first symptom appeared. We now feel that one should endeavor to diagnose carcinoma of the cervix before profuse bleeding appears.

Also bleeding was an initial symptom in only 7 of the 32 cases of fibroids, but in 19 cases prolonged bleeding was present with an average of 11 days.

The duration of symptoms for an average of 8 months in cases of carcinoma of the cervix, and an average of 3 1-4 years in the other conditions, permits one to think that the seriousness of certain symptoms at this period of life have not as yet been universally recognized by the public and there is still need for the instruction of the public in this matter and a ripe field for preventive medicine.

In practically all of the cases of fibroids where the menstrual periods were changed, also of carcinoma and polyps there were noticeable to the patients clots in the menstrual flow. In about 25 cases of fibroids and 7 of carcinoma of the cervix, this was one of the first things noticed, but no significance was attached to it.

The large number of lacerated cervices in the cases of fibroids, neuro-circulatory changes and relaxed vaginal outlet associated with discharge is a notable point, in that if chronic irritation plays any part in the stimulation of carcinomatous growths, such a vulnerable place as the cervix, should be protected at all times from any possible chance of degenerative changes.

The subject of carcinoma of the cervix, fibroids and polyps of the cervix is quite familiar to all of us, but I wish to present a group of cases with which we are equally as familiar, namely: The psychic and neuro-circulatory disorders before menopause.

Because of superstition and a more intimate knowledge of these dreaded psychic and neuro-circulatory manifestations of the menopause, women in their ignorance and because of the comparatively slight physical discomfort that is associated with pain in the groin, the presence of clots and changes in the menstrual flow—(any of which may be indicative of grave pelvic disorders)—are ignored in spite of the fact that they may be of far more importance to the individual as far as life expectancy is concerned, than the psychic and neuro-circulatory changes.

To enumerate all of the symptoms that have been associated with this pre-menopause group would require volumes. I wish to present one case which is rather typical not only in its symptoms but in its response to treatment of these symptoms.

W. F., 42 years of age, 5-19-27.

C. C.: Gas on stomach, shortness of breath, insomnia, nervousness, hot flashes, fluttering of heart, swelling of ankles.

F. H.: F. L. & W. M. (d) S. 3 (d) 2 T. B. C. 1 stomach trouble.

P. H.: No operations or serious illness.

Marital: 29 years; 9 pregnancies; 7 C. L. & W. 2 miscarriages. Negative otherwise.

Menstrual: Began at 12 years, regular, no pain, flow 3 to 5 days. Leucorrheal discharge past 2 years, accompanied by much itching.

Present Illness: Has been troubled with gas on stomach for several years, at intervals each spring. For the past year has been growing progressively nervous and has at times noticed fluttering of heart; hot flashes over body, which appear a few days before onset of nervousness, seem to be growing worse; progressive weakness, dizzy spells, weakness of eyes, past three months has had pains over precardia, stabbing in character, seems worse after meals, last 5 to 10 minutes, at times relieved by belching after taking soda; insomnia, pain in legs and hands, swelling of ankles at times when tired, constipated, nocture 2-3, no pain, nervousness and fluttering of heart until the patient is unable to carry on daily activities.

Physical Examination: Obese woman of 42 years, skin clear, general examination negative.

Mouth: All teeth extracted, slightly enlarged thyroid, no bruits or thrills.

Breasts, Lungs: Negative.

Heart: Negative, sounds good quality. B.

P. 160-100. Pulse 90.

Abdomen: Negative, no masses or tenderness palpable.

Extremities: Negative, no oedema or tenderness, reflexes O. K.

Vaginal: Marital outlet with slight relaxation; cervix slightly eroded, uterus normal size, prone position; adnexa negative for masses or tenderness.

Clinical Impression: Myocarditis, obesity, menopause, colloid goitre.

This patient had been previously diagnosed a case of neurasthenia. Had eyes examined which were negative, Wassermann negative, urine negative, no albumen or sugar.

Patient was given bromides 15 gr. 3 times daily and ovarian extract gr. v. 3 times daily and in two weeks all of subjective symptoms of flashes, pain, nervousness, etc., had disappeared. Then the patient was taken off bromides and given only ovarian extract for period of two more weeks with no symptoms, so extract at this time discontinued and in ten days symptoms reappeared. So placebo given but with no improvement in symptoms and ovarian extract was again given and in one week symptoms were relieved, so patient has been on extract since. November 7, 1927, patient returns having been back at full work, feels fine, no symptoms, good endurance.

This case exemplies eleven such cases that have been treated in this neuro-circulatory group, which, in a number of instances, have very disturbing symptoms, both mental and physical, appearing months or years before there is any notable menstrual changes. Some patients have marked neuro-circulatory symptoms as long as the menstrual periods are present and none after cessation. Unfortunately these people have been treated under many different diagnoses and without much relief. Some have just been told that it was the menopause and they must expect these changes.

Dr. Graves, in J. A. M. A., October, 1927, summarizes the glandular therapy of these cases well, when he states that in the treatment of the vaso-motor disturbances of menopause, the ovarian substances are distinctively though not constantly efficacious; this is supported by clinical evidence that cannot be disregarded for gynecologic purposes, with the exception of abnormal uterine bleeding. Ovarian preparations devoid of the corpus luteum or at least those which include the whole organ with its follicular apparatus are the rational choice, since they contain the more highly potent mormone from the follicle apparatus and are free from the toxic and inhibitory elements that are present in the cor-

	Carcinoma of Cervix (9)	Uterine Fibroids (32)	Pre-Menopause(29) Vaso-Motor Symp.	Polyps of Cervix (4)	Decensus R. V. O. (19) Cysto and Rectoce
Average Age	42 1-2 years	41 years	40 years	37 years	39 years
Race	7 W. 2 C.	8 W. 24 C.	22 W. 5 C.	4 W.	14 W. 5 C.
Average preg. ..	4—Children 3—Miscarriages 1—case no preg.	12—Cases no preg. 2—Miscarriages 2—Children	5 Children 1 Miscarriages 0 Cases without preg.	2 Children 1 case-o-preg.	6 Children 1 Miscarriage 3 cases o preg.
Family History of Cancer ...	2 cases	3 cases	1 case	0	3 cases
First Symptom ..	Pain in left groin; 6 bleeding; 1 pain in right groin and back 1.	Pain left groin 16 Bleeding 7 Back pain and pressure 9	Muscle pains, hot flashes 19. Nervousness 8.	Bleeding intermenstrual. Clots.	Pelvic pressure 11 Back pains 8
Duration of Symptoms Aver..	8 Months 1-wk. Shortest 2-yr. Longest	2 1-4 years 2-wks. Shortest 7-yrs. Longest	2 1-4 years. 3 weeks shortest. 5 years longest.	1 1-2 years 2 mos. shortest 2 1-2 yrs. longest	7 years 1 1-2 mo. shortest 12 years longest
Profuse Haem. ..	1 Case	7 Cases	None	None	None
Vaginal Discharge	Melodorous 4 present in all.	19 cases noticed	Slight in 11 cases	All Slt.	All Slt.
Menstrual Changes	1 Case Haemor. Periods painful.	Prolonged 19 cases 11 day average Intermenstrual 7	Regular no change. Irregular 9. Diminished 9.	Prolonged and Intermenstrual	Diminished and irregular 8. Unchanged 11.
Cervix	Euroded, Bleed easily, metastesis to Pelvis.	Lacerated 17	Lacerated 21.	Enlarged, boggy and dilated.	Lacerated 12. Boggy and indurated.
Uterus	Not notably enlarged	Markedly enlarged 22. Med. enlarg. 7. Normal size 3.	Normal sized 21. Small 3.	Enlarged 3	Small 15 Normal 4
Adenexa	Not palpable because of growth	Palpable 14 cases. Others not.	Negative 21 cases. Ovarian cysts 7.	Negative	Ovarian cysts 5 Some thickening 7 Normal for age 7
Weight: Gain, Loss	Wt. Loss Average 4 lbs. Greatest 24 lbs.	No loss. Average gain 5 pounds.	Aver. gain 7 1-2 lb. 11 cases no change.	Negative	Slt. gain
General	Radiating type of pain. Sec. anemia. Constipation 7.	Distended Abd. 19. Digestive 7. Constipation 27.	Insomnia 9 Palpitation 17 Dyspnoea 7 Odema of ankles 4	Negative	Dull back pains Bladder symptoms Constipation
Treatment	Radium	14 Operations	General measures Sedatives. Ovarian residue.	Excision	6 cases O. P. 4 cases pessories

pus luteum. The type administered should be obtained comparatively fresh to insure its potency.

In the dispensary our outline of treatment in this group of cases is to have a thorough understanding of the condition by the patient together with a knowledge of the time expectancy of the disease. In addition the correction of all foci of infection and constipation, together with general hygenic regimen, aided at first by the administration of sedative in form of bromides or luminol and 5 grains of ovarian extract 3 times daily, over a long period of time. With such routine we have obtained a most satisfactory result in this group of cases.

SUMMARY.

Finding of 9 cases of inoperable carcinoma of cervix before the menopause in which patients had had a duration of symptoms on an average of eight months before admission, with only four cases diagnosed and only one case with initial symptoms of bleeding.

Pain in left lower quadrant of abdomen, with radiation to back or the thigh was the first symptom noted in the majority of these cases.

Only 7 cases of fibroids gave first symptoms of bleeding. The majority of initial symptoms in these cases was pain in inguinal region. In 19 cases the menstrual periods were prolonged on an average of 11 days.

If chronic irritation plays a part in the stimulation of carcinomatous growth, old lacerated cervix with infection, should have early attention.

Neuro-circulatory symptoms that are associated with or appear before menopause give more satisfactory response to administration of fresh extracts of whole ovary, than any other symptoms associated with menopause in which glandular therapy is used.

A more careful intelligent attention to menstrual changes by women between the ages of 35 and 45 years, and a thorough pelvic examination on all such cases may lead to earlier recognition of above conditions and correction when a cure is possible.

Actinomycotic Tumor of the Colon.—Goyena's patient was treated with daily intravenous injections of 2 cc. of a 5 per cent solution of iodo-oxyquinoline sulphonic acid. There was improvement after the second injection, with decrease in temperature, almost complete disappearance of pain, appreciable decrease in the infiltration and size of the tumor and decrease in the number of leukocytes and in the polymorphonuclear percentage.

UTERO-ABDOMINAL FISTULA FOLLOWING CAESAREAN SECTION.*

By JOHN W. PRICE, M. D., F. A. C. S.,
Louisville.

Patient, L. C., female, white, aged 19, married, housewife, admitted to hospital March 7th, 1928. Chief complaint: drainage from abdominal scar.

The patient stated that in September, 1927, while bathing, she rubbed some "crusts" from the scar of a healed abdominal incision. Shortly thereafter she noticed a discharge of pus from a small fistula in the area from which the crusts had been removed, and the discharge had persisted since that time. At her menstrual periods blood escaped from the fistula, and continued to do so for several days after bleeding from the vagina ceased. In the interval between menstruations there was a constant slight discharge of sero-pus from the sinus. She said that occasionally she had experienced pain simulating "pin-pricks" in the scar. The discharge from the sinus was no more profuse on admission than when it began seven months previously.

She stated that her menses had usually been regular, but somteimes a few days early or late, duration two to eight days; that when delayed the flow was always excessive. Last menstruation two weeks prior to admission. There had been no leucorrhea at any time, and her venereal history was negative.

The patient had been married one year, and there had been one pregnancy which culminated in caesarean section in August, 1927, the child having apparently been dead about a month. No other pregnancies, no miscarriages nor abortions. She said she "fell down some steps in July, 1927, and injured her abdomen." Her general health had always been good, and there had been no weight loss.

Physical examination: Patient well-developed and fairly well-nourished. Pulse and temperature normal. Head, neck, heart and lungs negative. Abdominal inspection revealed the scar of former incision extending from symphysis almost to umbilicus. The lower part of the scar showed some irregularity apparently the result of drainage and infection. About two inches upward from lower end of scar there was a sinus one millimeter in diameter which on pressure exuded yellowish seropurulent material. Pressure elicited slight tenderness in region of the sinus. A small mass, apparently in the abdomen, was palpable beneath the scar. Further upward there was an area in which an impulse was noted on coughing, and there was some protrusion of the abdominal wall in that area resembling a small ventral hernia.

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*Read before the Louisville Medico-Chirurgical Society,

Vaginal examination disclosed a marital introitus, perineum normal, cervix nulliparous; fundus of uterus anterior and apparently attached to abdominal wall. A small mass was present in the left adnexal region.

Laboratory findings: Urine negative. Leukocyte count 9,400. Wassermann reaction of blood four-plus on March 8th and also March 20th.

Diagnosis: Utero-abdominal fistula; ventral hernia; lues.

Operation, March 28th, 1928: After excising the scar of previous operation, a small hernia protrusion was noted near upper end of the incision. Celiotomy revealed adhesions between uterus and ileum, and also between uterus and anterior abdominal wall. Both oviducts and right ovary were absent; left ovary enlarged and cystic. A subtotal hysterectomy was performed; the fistulous tract through the abdominal wall diessected free and removed with the uterus; the left ovary resected, and the ventral hernia repaired.

Pathological report: Utero-abdominal fistula; chronic endometritis.

The patient made an uninterrupted recovery and was dismissed from hospital fifteen days after operation. Antiluetic treatment was instituted and patient instructed to return in one month to the post-operative clinic for observation.

DISCUSSION.

L. Wallace Frank: Dr. Price has reported a very interesting and unusual case. Several years ago a young woman with a utero-abdominal fistula was admitted to the city hospital, not with the history of a previous caesarean section but of appendectomy and right salpingo-oophorec tomy. This girl had an abdominal fistula through which she menstruated each month. The fistulous tract was excised, the opening in the uterine cornu closed and covered with omentum. The woman was young and the possibility of future pregnancies had to be considered. In Dr. Price's cases, where the woman had already had one caesarean operation, and knowing that subsequent pregnancies would have to be terminated by the same procedure, and because of the decided defect in the abdominal wall, I think he was absolutely correct in performing subtotal hysterectomy. I congratulate him on the result obtained.

J. Garland Sherrill: I wish Dr. Price would tell us in closing whether he found any unabsorbed suture material in the uterus when he resected the fistulous tract. A sinus extending into the uterine cavity following caesarean section must be very rare, but when such a sinus occurs it is easily understood how serum might exude thereform at the menstrual periods. The opening in the uterine wall was probably due to faulty closure at the time of the original operation, and the continual escape of serum into the tissues finally caused development of the fistula.

It is really remarkable how well the uterus repairs itself after caesarean section.

John W. Price (in closing): When the fistulous tract was resected I found an opening in the uterine wall which extended into the cavity. Evidently the uterus had been sutured with absorbable material, as I found no linen or other sutures.

It would be interesting to know whether the young woman mentioned by Dr. Frank had any subsequent pregnancies. It has been my experience that after unilateral salpingectomy the expectation of subsequent pregnancy is rarely realized.

In my earlier work at the city hospital a great many women between eighteen and twenty-five years old were admitted with well-marked salpingitis. These patients were kept in bed for a month or six weeks and not operated upon under the belief that they would be benefitted by rest, and all of them did improve. However, the majority of those treated expectantly returned after six or eight months and bilateral salpingectomy was then performed. In many of these cases I have left one oviduct, but so far as future pregnancy is concerned I do not believe one tube is beneficial in one out of two hundred, which would be 1-2 of one per cent. On the other hand I think one ovary is beneficial to one hundred per cent.

In the case reported I think it would have been dangerous to attempt suture of the uterine opening. I believe the most conservative surgery in this case was subtotal hysterectomy.

Repeated Rupture of Uterus After Cesarean Section.—Engels reports the case of a woman who was subjected to cesarean section in her first pregnancy because of eclampsia. Five years later, during the ninth month of her second pregnancy, the uterus ruptured in the scar of the section. The child was dead. Extensive adhesions developed, firmly uniting the scar with the abdominal wall. The following year she again became pregnant. Because of the adhesions, the uterus above the scar was thinned out very considerably, and in the ninth month of pregnancy it ruptured. A living child was extracted and a supravaginal amputation was done.

REPORT OF EXTENSIVE BURN OF BODY WITH RECOVERY.*

By A. M. LEIGH, M. D., Louisville.

"Doctor, my child is burned, for Mercy's sake, hurry." I never hear that frantic cry without a shudder, "for it has opened the portals to a long avenue of pain and distress, an avenue that may lead to age-long disfigurement, and too often, by shorter ways, to the tragedy of death."

On Sunday evening, December 4th, 1927, through the courtesy of Dr. Richard M Goldsborough and Dr. James W. Bruce, I saw the patient, Alice E., aged eighteen months.

The history is as follows: On the morning of December 2nd, while the mother was preparing the baby's bath, the little one reached over the tub—a low built-in affair—for a floating toy, and fell forward into the scalding water. She suffered a very extensive scald of the abdomen, the chest anteriorly, the flexor surfaces of both arms, a part of the flexor surface of the right thigh, the entire vulva, the flexor surface of the left thigh, and an extension from the abdomen and chest to the posterior auxillary line on the left side. The face and hands fortunately escaped injury.

The area involved was conservatively estimated by all who saw it as at least a third of the body surface, practically all of which was of second degree.

Dr. Richard Goldsborough saw the patient a short time after the accident; the parents had already applied an unguentine dressing, and this was not disturbed until the following Monday.

The baby was in a moderate degree of shock, which lasted for several hours. There was considerable pain and restlessness, requiring the use of opiates.

I first saw the child about sixty hours after the accident; at that time, the temperature was 102°F., and while the inevitable toxemia was apparent, it did not seem out of proportion to the injury, and all of us were inclined to give a favorable prognosis.

In any extensive burn, there is a general problem overshadowing in its importance the local lesion, and it is therefore apparent that any discussion of treatment must be embodied under two heads: namely, first, constitutional treatment ,and second, local treatment.

Shock first demands our attention. It is ordinarily surgical shock, and is to be treated along conventional lines: body heat is carefully maintained, stimulants are given, and pain is relieved by relatively large doses of morphine.

When I saw the little patient she had successfully passed the period of shock, and was now entering that syndrome vaguely described as toxemia.

At this time it is especially important to force the fluids and do everything possible to maintain the fluid balance and alkali reserve. This was done by the administration of alkalis and dextrose, from thirty-two to sixty-four ounces of fluids being given daily by mouth. Codeine and elixer of luminal were given to allay restlessness; the dressings were changed every second day, but, in spite of all our efforts, the patient grew progressively worse.

On the evening of December 18th, the temperature was 105°F., pulse 168, respirations 55 to 60; condition apparently desperate. At this time, Dr. E. S. Allen saw the patient with us.

We decided to remove all the dressings and use the open air method. The iron bed was draped with sheets, leaving the baby's head outside of the tent; electric lights were used to maintain the temperature from 85 to 90 within the tent; all clothing was of course removed. Fluids and alkalis were used as before. Under the influence of the dry warm air, the granulating surfaces dried rapidly, the patient was much more comfortable, the temperature gradually returned to normal, and within the next week the baby was practically out of danger.

At the time the first dressing was changed, we seriously considered using the tannic acid method as advocated by Dr. Davidson of the Henry Ford Hospital, but as the greasy dressing had already been used we feared the tannic acid dressing would not be a success on this account. Dr. Davidson's treatment is a real advance in the management of burns, and more than any other method it has lessened the suffering and reduced the mortality from this distressing accident.

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DISCUSSION.

E. S. Allen: I had the pleasure of seeing the the patient in the case reported by Dr. Leigh. The child was then in a state of exhaustion from toxemia, and as Dr. Leigh stated it seemed apparent that the toxemia was due in large measure to constant absorption of material from the deeper burns. My only suggestion was that the greasy dressings be removed and the open air treatment be employed. I believe Dr. Leigh and the other gentlemen who had seen the case had arrived at the same conclusion, but I was asked to express my opinion. After the method of treatment was changed, as stated by Dr. Leigh, the child made a satisfactory recovery.

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*Read before the Jefferson County Medical Society.

In regard to Dr. Hendon's case. Anyone deserves to be congratulated upon securing such perfect anatomical and functional results in fracture of the femur as shown by the patient exhibited. I have had quite a number of fractures of the long bones and have generally treated them with Grant's gimlets with satisfactory results. Dr. Hendon gets his patients out of bed earlier than is possible when other methods are employed. I am always a little fearful there may be some bowing or displacement if the patient is permitted to get out of bed too early. As early as 1918 I used the bone peg method in the treatment of a fracture of the shoulder, and the patient is still wearing the peg. A perfect result was secured in that case. I have used the method once or twice since in fracture of the tibia, placing the bone peg in the medullary canal, but I have had equally satisfactory results with the Grant gimlets, which are allowed to remain in place for two weeks. Of course it is advantageous to get the patient out of the hospital on crutches in three or four weeks, and I feel that Dr. Hendon has described a method that will be of great service.

A. M. Leigh (in closing) As stated in my report, the reason the tannic acid method was not used in this case was because a greasy dressing had already been applied before I saw the little patient. I am familiar with the tannic acid treatment of burns as recommended by Davidson, and believe it represents a distinct advance in the management of these unfortunate patients. The tannic acid coagulates the albumin of the tissues and in this way prevents the absorption of the toxines. This type of dressing is allowed to remain undisturbed for eighteen to thirty hours, depending upon the depth of the burn and the condition of the patient. The tannic acid forms a film over the burn that looks like leather and is very pliable. After the dressing is removed the open air treatment is used, just as was done in the case reported. The tannic acid is used in two and a half per cent aqueous solution and should always be freshly prepared. When the dressing is removed. the burn is found covered with a parchment-like film, which is left undisturbed. The solution may be applied with a spraying apparatus, and in this way there are no dressings to be frequently changed. In case gauze is used, when this is removed one is like also to remove the parchment-like film, which is to be avoided. The spray method is especially valuable in burns about the face and hands. The hand may be immersed for several minutes in tannic acid solution at half hour intervals until a good film covers the burn. If about the face, the eyes must be protected from injury from the tannic acid solution.

A severe burn is a terrible thing. I have treated many such cases. At one time, I had charge of the men who worked in a large saw-mill in Mississippi, where burns were very frequent. The tannic acid method was not used at that time; the burns were dressed in various ways, and no one method was entirely satisfactory. The method advocated by Davidson is worthy of an extended trial, and its widespread use will prevent much unnecessary suffering.

AN INTERESTING CASE OF SCARLET FEVER.*

By James H. Pritchett, M. D., Louisville.

I desire to report the following case for the reason that it presents several features of interest, and some points worthy of discussion.

W. B., male, white, aged 11 years. Past histroy negative as far as asthma or severe illness is concerned. Had slight attack of rheumatism a year or so ago. The tonsils, though markedly enlarged, were not especially diseased. January 11, 1928, attended school as usual, although complained of nausea. Jan. 12, p. m. presented the following: temperature 104°F., chill, headache, sore throat, almost unable to swallow, vomiting, a heavy rash, and was at times delirious. A picture of profound toxemia and prostration.

At once I gave intramuscularly 10 cc. scarlet fever antitoxin, which on injection was at body temperature. Also I gave at this time adrenalin 1-2 cc. Within 48 hours marked improvement was noted, temperature 100°F., rash rapidly fading, no vomiting, patient in good spirits, asking for food. Jan. 14 to 17, uneventful. Fortunately, I had warned the family that sometimes hives developed follow ing the antitoxin. Late on January 17, five days after administering the antitoxin, he was suddenly overwhelmed by a most severe urticaria. Being unable to see the boy at once, Dr. E. H. Baker very kindly gave 1-2 cc. adrenalin. All symptoms abated. At 7 p. m. I saw the patient. At this time the urticaria had reappeared, the eyes were closed on account of edema of lids, the lips were several times normal size, there was vomiting, dysphagia, constant and intense itching, large ecchymotic wheals especially on trunk, buttocks and feet, at times he was delirious. A second injection of adrenalin was given. Improvement noted. I waited two hours and as the symptoms recurred, gave the third dose of adrenalin. At 10:30 patient was fairly comfortable, able to swallow, and by the use of calamine lotion and soda, the puritus was lessened.

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*Read before the Louisville Medico-Chirurgical Society,

January 18, 1 a. m., again overwhelmed, vomiting, intense pruritus, highly excited. Being "tied up' on a case of infantile convulsions, Dr. J. Kenneth Hutcherson saw the boy, repeated the adrenalin and gave codein hypodermatically. Soon he became easy, and gradually the urticaria diminished. Two days passed, suddenly he complained of severe pain in left knee and ankle, then the righ knee and ankle were involved, also the right elbow and hand, temperature 103°F., unable to sleep, refused food· Under salicylate and opium, the arthritis subsided. At this time vomiting began, pain in stomach following any food or water, possibly due to salicylates. Jan. 29, a slight myocarditis appeared, extreme weakness, as the boy refused all food. Dr. Barbour saw patient at this time. Feb. 4, after apparently on the road to recovery, developed a large abscess on right buttock, which gave but little trouble.

COMMENT.

Knowing what happened following the use of the antitoxin, I wonder what would have happened without it. This is the first (and I hope the last) serum reaction following the use of scarlet fever antitoxin I have had. Previous to this case, I had been rather of the opinion that the antitoxin was indicated in all cases. Now I believe it should be used in only the toxic or severe type, or those whose tonsils are diseased. I am certain that when used early the antitoxin is of great value, and despite the rare cases of serum sickness, the antitoxin will be used more and more· Recently in a certain medical journal a well known medical society of a neighboring city went on record as approving the scarlet fever antitoxin in all cases, saying that no one could foretell what serious result or sequela might follow an apparently simple scarlet fever.

I think we still have much to learn concerning scarlet fever and the use of the antitoxin as a preventative means, there being a diversity of opinion as regards its value and protection.

DISCUSSION.

James W. Bruce: Dr. Pritchett's case report is very interesting and suggests a number of important points. I am in perfect accord with his view that antitoxin should not be administered in all cases of scarlet fever. A mild case of scarlet fever may lead to nephritis and other complications, but, on the other hand, the serum sickness which he has described is so severe and occurs so frequently after the administration of scarlet fever antitoxin that it seems to me it should be used with great caution. Why this antitoxin should cause these severe reactions I have seen no explanation. I have seen tetanus and diphtheria antitoxin cause slight reactions but after scarlet fever antitoxin the reaction is much more severe. Six months ago I saw a child with scarlet fever and gave here one therapeutic dose of antitoxin. The fever which had been very high was reduced and the child felt better for four days, then on the sixth day after the injection, when the child was able to be about the house and apparently doing perfectly well, it suddenly developed a temperature of 105°F., pulse of 200, and was the sickest child I ever saw that recovered. It was desperately ill for two or three days. Scarlet fever antitoxin is a very potent agent and in my opinion should be given only in the moderately severe cases.

J. Kenneth Hutcherson: I saw this case for Dr. Pritchett one morning about one o'clock. When I entered the home, the parents were in great distress and showed much anxiety over the condition of the boy. As soon as I entered the room I realized the patient was very ill and the symptoms were most distressing. He was suffering with edema of the upper respiratory organs, was very restless, vomiting and suffering with intense pruritus.

I immediately administered, hypodermically, 1-2 cc. of adrenalin chloride, together with 1-4 grain of codein and one 1-300 of atropine sulphate and then decided to wait twenty or thirty minutes and see whether or not I would get any results. Fortunately he responded very readily and was apparently resting easy within thirty minutes from the time that I administered the hypodermic.

Modifications of Heart Functioning.—Circulatory dysfunction may be induced by numerous morbid conditions: (1) deficiency in contractile energy through lowering of inotropic capacity, from anatomic lesions or nervous influences (vagus); (2) deficiency in the volume of blood in a give unit of time caused by impeded emptying of the ventricles due to obstacles of a mechanical nature; (3) diminution in the number of the ventricular contractions due to various pathologic conditions; (4) lack of synergy between the increase in the number of heart beats and the increase in contractile energy, resulting in accelerated and incomplete systoles characterized by diminution of the amplitude and strength of the pulse; (5) excessive acceleration of the atrial pulsations due to increase in the value of the sino-arterial node, of cardiac or reflex origin, or resulting from extraventricular stimuli; (6) increase of the endoventricular and endo-aortic pressure; (7) lack of tonus regulation, namely, in the mecranis mby which the cardiac tone is determined and maintained by means of stimuli determined by the pressure prevailing

HERPES ZOSTER OPHTHALMICUS.*

By C. D. Townes, M. D., Louisville.

Herpes zoster is an affection of the skin, characterized by the formation of vesicles along the course of the terminal division of a nerve. ....

When the trigeminal nerve is so involved, it is most frequently manifested over the course of the first or ophthalmic division. The maxillary division is rarely and the mandibular practically never involved. In addition it is an interesting fact that often the disease "picks out" particular branches of the ophthalmic nerve leaving the other absolutely free. For instance, the supraorbital or the supratrochlear branches may escape or may alone be involved. Intraocular inflammation is a common complication of herpes ophthalmicus.

The symptoms in the order of their appearance are pain, neuralgic and quite severe, limited to one side of the face; fever, sometimes chills; and anorexia. These are followed in one to three days by the appearance of a skin eruption, at first papular but rapidly changing into vesicles, varying from 2 to 7 or 8 mm. in diameter and surrounded by a bright red areola. This eruption is confined to one side, never passing beyond the midline, and ordinarily is seen on the temple, forehead, upper lid and the side of the nose downward to the tip. The visicles are at first clear, but soon become cloudy and purulent and finally dry into crusts. Beneath these crusts are small ulcers which in time heal, leaving cicatrices similar to those of smallpox. From these scars it is possible to recognize the disease many years after its occurrence.

The eye complications begin only after the skin eruption has reached its height or is subsiding. This takes the form of an intractable keratitis, accompanied at times by conjunctivitis, iritis, iridocylitis, panophthalmitis and various involvements of the ocular muscles. It is most common in those cases in which the nasal branch of the nerve is involved. Hutchinson, many years ago, went so far as to say that "the eye scarcely ever suffers much when the nose is not affected, and the severity of the eruption on the one part is in direct relation with the severity of the inflammation of the other." However, other observers, notably Bowman and Foster Moore, have reported a number of cases in which the eye was involved when there was no discoverable lesion on the nose.

The cornea becomes cloudy, or deeply infiltrated with grayish patches or lines, and vascularization of its tissues takes place. Vesicles form which rupture and give rise to superficial ulcers which do not perforate. Hypopyon does not occur. There is marked conjunctival and ciliary congestion which, like the corneal ulceration, is slow in disappearing. The pupil is sluggish, often strong solutions of atropin having no effect. Intraocular tension is disturbed but little, being somewhat subnormal in the late stages.

The disease is of long duration. Long after the acute symptoms have subsided the eye remains anesthetic, at times sensation is never restored and a neuro-paralytic keratitis may arise. Prognosis is serious as to visual acuity. Vision is much reduced due to corneal scars, adhesions of the iris or to optic atrophy.

The pathology of this condition, first described by Sattler in 1875 and corroborated by Hedd and Campbell in 1900, consists of acute inflammation with hemorrhages in the Gasserian ganglion, later changing into fibrous tissue with degeneration of the nerve fibers and thickening of the overlying sheath. The cause of such inflammation is, in most cases, not known. Fuchs states that herpes has been known to develop from chilling of the body, head injuries, the use of arsenic and from carbon monoxide poisoning. Brown and Dujardin have shown that syphilis predisposes to herpes. The disease occurs but once in the same patient and involvement of both sides has never been seen. It is essentially a disease of the aged rarely being seen in the young.

CASE REPORT.

Mr. C. Q., white, adult, 59 years of age. Complaint: Left eye red and sore for last ten days. Previous history: Syphilis several years ago with only a moderate amount of treatment at Martinsville, Ind.

Present illness: About Sept. 15, he developed pain in the left supra-orbital region with swelling and irritation of the skin. On Sept. 19, he consulted Dr. Owsley Grant whose physical examination at that time showed the patient to be well-developed and well-nourished. The face showed a pustular eruption on the left side over the distribution of the ophthalmic division of the fifth nerve. This area was red and angry. The eye was partially closed and there was some conjunctival discharge.

Chest and abdomen: Normal. Reflexes: Pupils refuse to react to light. Biceps, normal; pastellar, normal; babinski, suggestive. Blood Wassermann, four plus.

From Sept. 25 to Oct. 6, the patient was given three intravenous doses of neosalvarsan. At this time the skin eruption was much improved but severe pain persisted. A spinal Wassermann was found to be positive and the patient was given the Swift-Ellis treatment. Still the pain was so severe that he was irrational much of the time. Dr. Spurling was called in consultation and it was decided to do a Gasserion ganglion operation. However, a leutic meningits was found with the meninges in such condition that the operation could not be continued. The supra-orbital branches were sectioned at the supra-orbital notch. After this procedure the pain subsided rapidly, and the patient was able to leave the hospital in about two weeks, since which time he has been receiving antiluetic treatment.

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*Read before the Jefferson County Medical Society.

Examination of eye on Nov. 29, revealed fairly marked ciliary congestion. The Bulbar conjunctiva was not congested and there was no discharge. On the upper lid, however, were several areas of cistricial tissue, evidently from an old trachoma. The cornea was cloudy and presented a small superficial ulcer at about five o'clock, with small vessels running to it from the limbus. The iris could not be examined carefully because of the haziness in the cornea but a mild iritis was present. The pupil responded neither to light nor accommodation, a sign which is strongly indicative of cerebral syphilis. An argyl-Robertson pupil is suggestive of tabes, whereas an absolute iridoplegia points toward cerebral involvement. The cornea was completely anesthetic at this time.

Under the usual treatment for corneal condition,—atropin, hot compresses, frequent applications to the ulcer of iodine or pure carbolic acid,—no favorable progress was made for the first few days. Atropin, even in 4% solution, had but little effect on the pupil. The ulcer spread rapidly until the whole cornea was denuded of its epithelium. However, there was no suppuration and the ulcer remained very superficial. The eye was kept bandaged for several days to protect the insensitive cornea the patient undertaking no treatment at home at this stage. Then the epithelium began to regenerate over the cornea continuing slowly until only a small central ulcerated area was left. This persisted for about three weeks before any further improvement was noticed. Hoping to hasten, if possible, the healing process the roughened upper lid was rubbed briskly with gauze saturated with 1:5000 bichloride of mercury solution, some improvement being noticed after this was done. The small central ulcer slowly healed, and at the last examination, only this morning, the epithelium was intact throughout the entire cornea. The vascularization had practically disappeared and there was only a very slight ciliary congestion present. Sensation is returning in the cornea but is still far from being normal in this respect. There is a possibility of this patient developing a keratitis neuro-paralytica at a later date, if the nerve supply of the cornea remains inadequate, but at present his eye is quiet and he retains some useful vision.

DISCUSSION.

Adolph O. Pfingst: Dr. Townes' case report should not be passed without discussion as it represents a condition that should interest the oculist and the internist alike.

When we stop to consider the histological make-up of the cornea we can readily understand why herpes involves this structure. The several layers of epithelial cells covering the cornea anteriorly rests on the smooth Bowmann membrane which is practically its basement membrane. That there is no fast union between the cells and the membrane is demonstrated in the way the epithelium often lifts off the cornea and forms bullous blisters in cases of increased intra-ocular tension, also in the rapid maceration and exfoliation of epithelium around a foreign body which has lodged in the corneal epithelium for some hours. When we consider the corneal structure it is rather surprising that herpes is not a more frequent affection of the cornea.

Perhaps the form of herpes best known to most of you is the one associated with eczema around the nostrils and mouth in febrile diseases, especially those of the respiratory tract like pneumonia and influenza. It is not uncommon in these affections, also in the exanthematous diseases of childhood, to have pustules form at the nostrils and at the angles of the mouth, and coincidently on the corneal and conjunctiva. These pustules are associated with photophobia and local pain, but are not characterized by pain extending over the entire half of the face. Frequently both eyes are involved. They seldom perforate Bowmann's membrane but merely lift the epithelium forming ulcers which heal in eight or ten days leaving faint scars.

Phlyctenular disease of childhood is also characterized by the formation of blebs. These, however, instead of containing serum usually contain leucocytes and lymphoid cells. They also break and form ulcers and seldom involve the deeper structures of the cornea. They are usually found at the corneal limbus but may form on the cornea proper or on the conjunctiva. They are also associated with photophobia and localized pain.

The herpes as we find it in herpes zoster is a different proposition. The blebs usually are a part of a herpetic eruption of the skin of the face. They are limited to one side of the face and are most frequently found along the distribution of the nasal branch of the ophthalmic division of the fifth nerve. They form in front of Bowman's membrane but frequently perforate it and involve the substantia propria, causing it to become infiltrated and cloudy.

Deeper inflammations involving the iris and ciliary body are not infrequent in the course of a herpes zoster ophthalmicus. The affection is marked by severe pain over the side of the face, which often continues after the ulcers have healed and the cornea has become anesthetic. It is interesting to note that the disease has been growing very much less frequent, that is in my hands. This may be a coincidence, but I am inclined to believe that the disease is on the decline and attribute it to the fact that we are recognizing and eradicating points of focal infection that formerly went unnoticed. I do not know how we could well account for the inflammatory changes often accompanied by hemorrhage that occur in the Gasserian ganglion except in a focal infection. The foci of infection are most likely in the nasal accessory sinuses or in the teeth, and the fact that we are dealing with the diseased sinuses and diseased teeth in a more satisfactory manner than we formerly did may at least in a measure account for the apparent relative infrequency of herpes zoster.

Edward R. Palmer: In regard to the case of herpes ophthalmicus reported by Dr. Townes: He mentioned the fact that this type of herpes seemed to owe its origin to syphilis. It has been my observation, and I doubt not the fact has frequently been noted by others, that when certain doctors encounter an individual who has some obscure disease and also happens to have a positive Wassermann, they immediately conclude that syphilis must be the cause of the trouble. It is well known that a syphilitic may have herpes, but in such a case I do not believe that herpes is the result of syphilis. The most that syphilis does is to lower the resistance of the individual and thus favor the development of herpes.

I am in accord with the views expressed by Dr. Pfingst that herpes is frequently due to some local focus of infection. Syphilis only lowers vital resistance, it does not cause herpes, and quite naturally we would expect improvement in the herpetic lesions in such an individual under antisyphilitic medication.

W. Edgar Fallis: Dr. Townes has given us a very complete review of herpes as it affects the eye. The case he reported is extremely interesting and I want to congratulate him on the result secured.

In regard to oblique fractures of the long bones, and with particular reference to the case reported by Dr. Hendon. For some time I have been using a device which I think is quite practical, perhaps not so good as Dr. Hendon's bone peg, and a plaster cast is generally used to make fixation more secure for a short time, but my results have been very satisfactory. The device is made exactly on the same principal as a wood screw, it is about one and a half inches long, and has an ample shoulder on it. In oblique fracture a hole is drilled in the fragments after approximation and this screw inserted. The fragments are thus held firmly in place. The method has been very satisfactory to me. After the cast has remained in situ for a week or ten days and sufficient callus has been formed to insure future fixation the device is removed. By this method no foreign body is left in the tissues. The plan is not applicable to transverse fractures, but in oblique fracture of the long bones I have found it a most satisfactory method.

I am glad to have heard Dr. Hendon's report and the result secured by his bone-peg in the case shown leaves nothing to be desired.

GYMNASTICS FOR SCHOOL CHILDREN.*

By Burton A. Washburn, Paducah.

This is the second article pertaining to the kind of exercise that should be given children for the purpose of correcting body lines and deformity. The teacher should observe the standing position of the child, diagraming the alignment of joints as follows: establish a vertical line through the center of external surface of body from head to the foot, this will give the weight carrying, and the correct standing position.

Anterior to this line there may be an abnormal chest or abdomen, knees that are prominent, because of the tension upon the leg muscles due to weight carrying on the side of foot.

Back of the vertical line there may be a convexity of the lumbar region, and a pronounced curve in the posterior direction of the dorsal region, which may reflect angle lines from the articulation of the dorso-cervical vertebrae. The spine is supported by a surrounding ligament, and the most frequent injury involving same, is known as a "ligament sprain." The spine represents several joints, therefore, you can not attack the same significance to a sprain at the point of a long bone, as you do a sprain of the spinal ligament, because a spinal lesion will be in keeping with the number of segments involved, which will establish its symtomology.

A traumatic spine not only develops local but complicated symptoms, because it indicates a sprain of ligaments. It may also involve the cord, manifesting anesthesia, hyperthesia, excitability, visual disturbances, and marked changes in nerve reflexes.

Our first consideration in the proper care of a traumatic joint is a careful study of the physiology and the probable pathological condition which may develop.

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*Read before the McCracken County Medical Society.

I will not review the histology of bone development, but will refer to enough of the minute anatomy to verify the statement I make regarding its importance.

There are two kinds of bone development in early life, intracartilaginous and intramembranous. Before ossification begins in the bone it is entirely cartilaginous. In long bones the ossification begins in the shaft or center and proceeds toward the articular ends. The extremities do not become joined to the shaft until growth has ceased, but remain separated by a layer of cartilaginous tissue called the epiphyseal cartilage.

As ossification of the cartilage shaft extends toward the articular ends, it carries with it a layer of cartilage and grows as it ossifies. When a bony center appears in the cartilaginous epiphysis, then the process of ossification begins and in time the distinction betwen the shaft and the epiphysis is obliterated. (Some exception) The medullary spaces which characterize the cancellous tissue are produced by the absorption of the fetal bone. The distinction between the compact and cancellous tissue depends upon the degree of this absorption. Notice the fact that in a morbid state of the bone, inflammatory absorption may produce such changes as to reduce the compact bone to a cancellous tissue. The knowledge of when the epiphysis becomes united to the shaft is very important. It aids in a diagnosis and prognosis of all joint injuries.

It must be remembered that the epiphysis is not united to the shaft during childhood, and all injuries to the joint require a careful examination to determine whether you have a fracture, a displacement of the epiphysis, or a line of un-united epiphysis.

The humerus, hip, and ankle, may be the seat of serious joint complications when traumatized. Separation of the epiphysis of the femur, or of the several parts of the acetabulum or a fracture are common in hip injuries of children. An x-ray should always be made, when there is a history of trauma to these parts.

If you have a joint where contusion has been severe, and there is marked swelling of surrounding tissue, you may be certain of a great deal of wound exudate. At this point there is danger of a fibrous ankylosis or osteomyelitis.

One of the first bones for consideration is the clavical. One of its pecularities is its great elasticity. Many fractures of this bone have developed ostemyelitis due to the difficulty of differentiating between this elasticity and a fracture. The x-ray is the best aid in making a differential diagnosis. Because of the elasticity of this bone a tremendous force upon the point of the shoulder can be withstood.

It is well to remember that at the age of twenty ossification is complete between the shaft and the epiphysis, and that it has two centers of ossification, one for the shaft and one for the sternal end. X-ray exhibits of this bone from infancy to its complete development form a very interesting study.

A point of interest regarding the humerus is the fact that the condyles and epiphysis have different periods of development. The centers of ossification are each separate; one for each condyle, the head, shaft, tuberosities, radical head, and for the trochlear portion of the articulating process. At birth the shaft is nearly ossified, and all extremities are cartilagenous. The two year ossification begins in the head. The third year ossification begins in the lesser tuberosity, and in the fifth year the greater tuberosity is ossified. During the sixth year the head and the tuberosities are joined by a complete ossification and form a single epiphysis. Ossification begins during the second year in the radial portion of articulation. The internal condyle ossifies the fifth year, and the external condyle the thirteenth. At seventeen the condyles, the radial, and the ulner articulations unite with the shaft. The condyles and the articulating surface have previously united and at twenty the upper epiphysis unites with the shaft. It is necessary to understand this because fractures in children are varied, and it is frequent that an injury in this bone will involve all parts of the joints.

Tuberculosis, and osteomyelitis, fibrous, and bony ankylosis are the complications to be looked for in joint injuries. The child has no protection from infection in traumatic cases, as the diseased condition is carried from the shaft to the epiphysis.

MALNUTRITION.*

By J. H. Hutchings, Maysville. Full Time Health Officer, Mason County.

What is malnutrition? Malnutrition is not a disease. It is a lowered physical and mental condition of the body, brought about by faulty or inadequate diet and bad health habits.

It is essential that a child's food contain such vital elements as will give the body the best possible material with which to work. At the same time the body must be in the best of condition in order to receive the entire benefit from the foods eaten. The lack of either or both of these conditions necessary for normal growth may result in malnutrition.

Extent of Malnutrition: It is estimated on reliable authority that 30% of the children in our country are suffering from malnutrition. In other words, practically one-third of our children of school age are below normal physically and mentally.

Causes of Malnutrition: The most important thing to consider in connection with malnutrition is the question of its cause. There are numerous causes of this condition, of which the following are the major causes:

1. Insufficient food.
2. Unsuitable food.
3. Improper cooking.
4. Faulty food habits.
5. Insufficient exercise.
6. Disorders in digestive tract.
7. Faulty assimilation.
8. Bad posture.
9. Diseased organs.
10. Insufficient sleep.
11. Over-fatigue.
12. Faulty health habits.

There are in addition to these specific causes certain underlying causes of malnutrition, such as (1) Poverty, (2) ignorance, (3) lack of parental control.

How to Recognize Malnutrition.

Malnutrition can be recognized by a number of signs and symptoms. A malnourished child is, in the first place, almost always underweight, but he may be fat and flabby. The use of a height and weight chart is a helpful introductory method of determining a child's physical condition. An underweight condition, pale or sallow skin, soft flabby flesh, undeveloped muscles, dark circles under the eyes, lustless hair, and dull lifeless eyes are all physical symptoms of malnutrition.

The malnourished child is apt to be listless and disinclined either to work or play. He generally tires easily, and is often regarded as lazy. He is likely to lack mental vigor also, having little power of concentration and attention and less than the normal amount of curiosity and mental alertness. In disposition he may be nervous, restless, fidgety, irritable and extremely finicky about food. Malnourished children may exhibit one or several of these symptoms, depending on the degree of undernourishment. The effects of malnutrition are far reaching and are shown both in the physical and mental development of the child.

Physical effects: The immediate results of malnutrition, as have already been pointed out, are retarded growth, anemia, nervousness, irritability and lack of energy. The permanent effects are even more serious. The malnourished child, because of his low vitality and poorly developed body, is very likely to grow up to be less efficient than a well nourished child and unfit to assume the full responsibility of a good citizen.

The malnourished child is moreover a magnet for disease. We know that the diseases to which people are subject—especially those to which children are subject—are most likely to attack undernourished children first. They not only succumb more easily to diseases but they generally have more serious cases and recover with greater difficulty.

There is a close relationship between malnutrition and mental development. Malnourished children are very often mentally retarded. The explanation is simple. A brain which is not getting sufficient or proper food cannot function normally any more than a starved body. Both need to be generously nourished in order to be vigorous and healthy. In view of these evil consequences it is imperative that malnutrition be overcome in order to safeguard the physical and mental welfare of the nation.

How to Overcome Malnutrition.

Fortunately, malnutrition can be overcome or prevented if dealt with intelligently and consistently. The first step in the treatment of malnutrition is to discover the cause in order that it may be removed.

1. Correction of physical defects. A malnourished child should have a thorough physical examination to determine whether there are any physical defects which are the direct cause of this condition. Every child should have a thorough physical examination yearly. Enlarged or diseased tonsils should be taken out; bad teeth should be filled or extracted, and all other organic defects removed.

2. Good home environment. Malnutrition can often be traced to bad conditions in the home. In order to be normally healthy and happy a child must be surrounded by a good

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*Read before the Annual School for Health Officers.

home environment. The home should be a place of happiness and encouragement, not a place of fear and repression. Happiness has an amazing value in promoting good health and should always be kept in mind when dealing with children.

Health workers who visit children's homes and come into direct contact with the mothers and families have an unusual opportunity to observe home conditions and make an effort to improve them. If poverty is a determining factor it will probably be necessary to enlist the aid of relief agencies. The trouble may be due to ignorance on the part of parents, which calls for instruction by the health workers in the rules of healthful living.

Good Health Habits.

Such fundamentals as rest, fresh air, bathing and proper clothing are very important in helping to bring the malnourished child up to normal. The following health rules should be taught to every child as essential for his health and happiness.

Health Habits:

1. Sleep at least 10 hours with windows open.
2. Take bath every day; wear clean clothes.
3. Brush your teeth at least twice a day.
4. Have a bowel movement every day, preferably in the morning just after breakfast.
5. Exercise every day out of doors.
6. Always stand, sit and walk erect.
7. Be cheerful and learn not to worry.

Food Habits:

1. Meals should be regular.
2. Do not eat between meals.
3. Never overeat.
4. Eat slowly and masticate your food well.
5. Eat a variety of foods.
6. Eat vegetables, fruits and cereals each day.
7. Drink at least four glasses of water and at least two glasses of milk each day.
8. Drink no coffee or tea.

Diet is an all-important factor in overcoming malnutrition. The kind and the amount of food a child eats, and the habits which govern the taking of such foods are vital matters.

One of the most direct and effective ways in which teachers and health workers can deal with malnutrition is to start health and nutrition classes. The nutrition class should meet regularly every week for a period of at least thirty minutes. At this time the children should be weighed, the weights being recorded on tags which the children are urged to take home to their parents. It is very important to have some sort of tags, as it stimulates the child's interest to have something to take home to show his parents. Incidentally, it arouses the interest of the parents in the nutrition class and keeps them regularly reminded of its progress. The teacher should keep a systematic health record for every child in the class. There should be space on this chart for the name of each child, his age, height and normal weight. The chart should be so arranged that each child's actual weight gain can also be recorded every week and a star placed on the chart for such gains.

Organized nutrition lessons should be presented each week at which time health rules previously mentioned should be reviewed. The lessons should emphasize the value of milk, of leafy vegetables, of fresh and dried fruits and of coarse breads and cereals in the daily diet. Stress should be placed upon proper habits of hygiene such as bathing, long hours of sleep, plenty of fresh air, exercise and dental hygiene.

Illustrated material in the nature of posters, the placing of stars on weekly weight charts for gains in weight, health records, games, songs, plays and stories are all helpful in stimulating children's interest in their weight gains and improved physical condition.

This grappling with the lives and health of children is a tremendous responsibility. All mothers and fathers do not meet this responsibility, and therefore teachers, health workers and nurses become more or less accountable for the normal development of the younger generation.

Treatment of Profuse Hemorrhage Into Peritoneal Cavity.—The author discusses four methodsof treatment for ruptured tubal gestation: (1) reinfusion of blood, (2) leaving the extravasated blood in the peritoneal cavity, (3) subcutaneous and rectal reinfusion, (4) blood transfusion from a donor. He has treated thirty cases, twenty-two by the old method of sodium chloride transfusion, and eight by reinfusion. Uneventful recovery took place in all cases of the first group. In the second, four died, two recovered after stormy complications, and two had an uneventful recovery. The complications of intravenous reinfusion as observed in his cases and as referred to in the literature are: fever, icterus, shock, dyspnea, somnolence, hematuria, oliguria, uremia and death. The method proposed by Ohlshausen of leaving the blood in the peritoneal cavity is objectionable for many reasons. The most valuable method is blood transfusion from a donor.

NEED OF PHYSICIANS IN THE COUNTRY.*

By W. G. Kinsolving, Eddyville.

The Bible tells about an ancient people that concluded they would build a tower to reach up to Heaven so they could go to Heaven any time they wanted to. Their ideal was indeed great but of course it was not practical and was silly and foolish. They attempted this silly thing and their language was confounded and there was great confusion and consternation and there was babbling of tongues and we have had a conglomeraton of languages ever since. This was called the Tower of Babel. This reminds me of the Tower of Babel and confusion that is being built up in the medical profession. They have gotten the standard of medicine up so high and the course of study so long and so expensive that none but the rich can take it and the consequence is that country physicians are getting scarce and will be more so every year until small towns and the country will have no doctors at all. There are only four legal doctors now in Lyon County and as soon as the older doctors die, Eddyville and Kuttawa and the whole county of Lyon will have no doctors unless they are irregulars or quacks. In many places in the country it is twenty to thirty miles to a doctor. At the present time many people are suffering and dying in Kentucky for the want of proper medical attention. The ideal of the medical college is great but it is not practical and it will produce more and more suffering and death in all country districts. All the young men and women that graduate in the medical colleges in the future will locate in the cities and all the country districts will be devastated by disease for the want of doctors.

When Christ was born Herod slew all the children in his dominion that were two years old and under. Then was fulfilled that which was spoken by Jeremiah the prophet, saying: "In Rama there was a voice heard, lamentation and weeping, and great mourning, Rachel weeping for her children, and would not be comforted, because they are not." This is indeed was a great calamity but if the present medical standard is not modified it will be nothing to compare with the results all over Kentucky, and many of the other states, for I understand most all the states have a similar law to ours. Not only children will suffer from the effects of this unreasonable, absurd law, but all ages will suffer the ravages of disease and die for the want of physicians in the country.

What are we going to do about it? What do we want to do? We must modiy the medical practice law so men and women of moderate means can practice medicine. We want a law that will give us more general practitioners. We want a law that will demand a good common school education, a special high school education, that will give the essential knowledge of the branches that a doctor will need in the study of medicine; the essential branches that he will need and leave off the non-essentials.

Then he wants to study twenty-four months —six months in each year for four years and be taught in all the common diseases, diagnosis, practice, etiology, materia medica and therapeutics—how to treat and cure a disease.

It seems that the present teaching is diagnosis, but they don't pay much attention to therapeutics. The most important part is how to treat your patient and cure the disease.

The practice of medicine is both a science and an art, but the art is the most important part. You may go to school thirty years, but if you don't practice you will never be much of a doctor.

General practice is the foundation of the whole system and no one can be a thorough competent specialist unless he has had at least five years experience in general practice. We want a law that every young doctor must do at least five years general practice before he goes into a specialty.

Oschner, the great surgeon of Chicago, says: "Ninety per cent of all the ailments of the human family are best treated by the general practitioner." The specialist is very essential but the family physician, the general practitioner, is indespensible because he knows all the peculiarities and idiosyncrasies of the family.

Dr. Boggess of Louisville, says: "The old country doctor has much better results in pneumonia cases than does the city physician with all the latter's modern equipment and scientific attainments."

He is correct. Why is that? Because the country doctor is a man of practical ability. He learns at the bedside. He don't leave everything to his nurse but he watches the effect of his medicine closely and gives it according to effect and stays long enough to know the exact condition of his patient and then can instruct his nurse just exactly how to proceed.

The country doctor acquires the art of treating the general diseases and is a trained expert in his line.

We country doctors have good success in treating pneumonia and typhoid fever and don't expect to lose our patients unless they are worn out by age, or decrepit invalids, or victims of horrible environment precluding proper treatment and attention.

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*Read before the Southwestern Kentucky Medical Association, Paducah.

We must have more doctors in the country or the people will perish and the country will be a desolate region of despair. Then finally the cities will decline because they have no support by the country. Burn down your cities and save the rural districts and the cities will again spring up as by magic, but destroy the farming districts and the cities will crumble and fade away and be the abode of bats and owls.

Oschner says, "The medical schools have almost quit training general practitioners and train only specialists and research men. In fact, some of the professors despise general practitioners." But we know that ninety per cent of all the ailments in the world should be treated by the general practitioner. Then what do we want? We want the whole system changed. We want our young doctors to have a good practical common school education, a good practical high school education—then four years training in general medicine. Then have a diploma and the title of M. D. Then after he practices in general practice for at least five years, if he wants to go into a specialty let him prepare himself for the special work of his choice.

We say six months in a year for four years in a medical course, because this gives a better chance for poor boys and girls to work their way through medical college; and I am greatly interested in this class of young people. We realize that the majority of great men and women of all the world have not been raised in wealth. It is said that riches seldom last longer than the third or fourth generation. Luxury and ease are not very conducive to "grit," energy and determination and the boy and girl "reared with a silver spoon in the mouth" seldom rises to eminence and renown, but the poor boys and girls taught to work and honor toil and inspired by lofty ambitions burning in their souls, who go to school part of the time and work part of the time and study and think all the time are the chosen ones of destiny and they rise from obscurity to distinction and honor and are priceless blessings to the world.

Abraham Lincoln, one of the greatest men the world ever knew, had no superior and very few equals, born in a cabin, reared in poverty, had very little schooling, was a rail mauler, developed his natural good mind by hard study and pungent thought and reasoning, developed his body by proper physical exercise, inured to toil and hardships which seemed to develop an iron constitution, a courage and tenacity of will to overcome all obstacles.

Thomas A. Edison was a poor newsboy and we all know he has given to the world more useful inventions, perhaps, than anyone living today.

Benjamin Franklin the tenth child of a printer, with only about two years schooling, became one of the most learned men of the world and has to his credit as many useful inventions and practical observations as any one in all the eras of time.

Ephriam McDowell, an unknown country general practitioner, living in Danville, a small village at that time in 1809, practically without any assistance performed the first ovariotomy and this has been the means of saving millions of women's lives and the fame of McDowell will last to the end of time.

Koch, an unknown general practitioner, in an obscure village of Prussia, discovered the bacillus of tuberculosis and the spirillum of cholera and laid the foundation for modern bacteriology.

These are a few cases of greatness coming out of obscurity, but there are thousands of such caess in the past and the present time to prove that boys and girls in poverty and obscurity may rise, and will rise, to usefulness and even eminence and renown if the law will not prohibit them from entering the professions.

Look around over your country and observe the great and leading men that you know by personal observation and knowledge. Who are the great lawyers, doctors, preachers, executive officers, financiers, judges, congressmen, senators and governors?

Most of them were poor boys and reared in the country. This proves that poor boys and girls may be very valuable assets to the world.

Again, go to the hovels of the poor and you find intellect and genius bright as the world ever saw, permitted to live and die in mental darkness and obscurity, many great minds and souls dwell in bodies clothed with rags and at last die in hovels unkept and unknown because the road to fame and renown was never made visible to them by the light of opportunity and education.

So it is with many poor boys and girls of today. They have ambition, they have intellect and genius but are completely overcome and eclipsed by lack of opportunity.

Many bright young men today that would like to study medicine and would make great doctors, general practitioners, that would practice in the country, save thousands of lives, be a glorious blessing to the people, a great honor to themselves and dispel sorrow and gloom in many districts where the people are weeping, mourning and dying and pleading for doctors to relieve them. But they can't have them because these young men can't furnish at least ten thousand dollars to keep them in a medical college seven years..

Such a law as this creates monopoly for the rich and crushes the poor and destroys all hopes for intellect and genius among people of moderate means and is producing one of the most serious calamities of modern times.

We all know that some of the best doctors in the world today did not have more than two or three years in medical college and it is non-essential to be in college half of your life before you commence the practice of medicine. You can't learn all in college. You have to learn the most in practice. "Practice makes perfect" in everything; and the young doctor with a practical college course of twenty-four months and is blessed with good common sense and talent and studies and thinks and reasons all the time while be practices his profession will rise to eminence and renown and the people will rise up and call him blessed on account of the joy and happiness he has brought into their homes.

Yes, we must modify the present medical practice law which is a monopoly for the rich and crushes all the hopes and ambitions for the poor boy and the people of moderate means and gives no chance whatever for the poor boy or girl to rise to usefulness, eminence and renown that so many have enjoyed in the past.

Give us a reasonable, just and practical medical practice law and vanish all this suffering and death that is abroad in the land, in the country districts where they can't get doctors on account of this cruel monoply.

NEWS ITEMS

Drs. J. A. and Morris Flexner announce the removal of their offices and laboratory to Suite 619 Heyburn Building. July 1, 1928.

Dr. Emmet F. Horine announces the removal of his office to the Breslin Medical Arts Building, Third and Broadway. Morris M. Weiss, M. D., Associate.

Practice limited to cardio-vascular diseases. Examinations, consultations, basal metabolism, electrocardiography.

Dr. E. Dargan Smith, who for the past six years has been in charge of the surgical division of the Leung Kwong Baptist Hospital in Canton, China, has returned and located at 221 Masonic Building, Owensboro. Previous to his service in China, Doctor Smith practiced surgery in Louisville.

WOMAN'S AUXILIARY NOTES

PRELIMINARY PROGRAM FOR GENERAL MEETINGS

Monday, September 10.

Report of the President to House of Delegates, Kentucky State Medical Association.

Tuesday, September 11.

Visit to the General Assembly, 10:30 A. M.
Meeting of Executive Board, 2:00 P. M.

Opening Session.

Invocation
Roll Call
Minutes of Last Meeting
Address of Welcome
Response
Greetings from Kentucky State Medical Association......Drs. Estill, Blackburn and McCormack.
Address......Mrs. Allen H. Bunce of Atlanta, Ga., President, Woman's Auxiliary, American Medical Association.

Wednesday, September 12.
9:30 A. M.

Report of Officers
Report of Committees
Address—"Some Birds I Know".....Dr. A. T. Atchison Frazer, Marion.
Installation of New President......Mrs. Wm. M. Martin, Harlan.
President's Address......Mrs. J .T. Reddick, Paducah.
Unfinished Business
New Business
Election of Officers
Adjournment
Executive Board Meeting.

SECRETARY'S REPORT.

The past year has been a period of growth and activity for the State Auxiliary.

Since July 1, 1927, six counties, Allen, Breckinridge, Garrard, Laurel, Perry and Taylor have been admitted to membership and the total number of members is 300 as compared to 221 last year.

Two more counties, Ballard and Carlisle, have been recently organized by Mrs. V. A. Stilley.

To the women of the Auxiliary belongs much of the credit for the aroused public opinion which killed the Ripper Bills (House Bill No. 463 and Senate Bill No. 493) in the 1928 Session of the General Assembly at Frankfort and kept the State Board of Health under the supervision of the medical profession. On February 15th Mrs. Wm. M. Martin, President, Woman's Auxiliary, Kentucky State Medical Association, sent letters to all obtainable addresses of the wives of Kentucky physicians urging them to write to their Governor, State Senator and Representative, asking them to vote against the Ripper Bill. The response of these women was so gratifying that on March 31st Mrs. Martin again worte them, thanking them for their prompt and effective work in helping defeat the Ripper Bill.

An urgent apepal was made through the Woman's Auxiliary Page of the Kentucky Medical Journal to the county auxiliaries to collect and send to the State Secretary all data in regard to pioneer work of physicians in their respective counties. The following contributions were received: newspaper clippings, concerning pioneer physicians from Mrs. A. T. McCormack; an article about Jane Crawford's grave from Mrs. McCormack and a list of the names and addresses of forty-seven physicians living in Louisville in 1832 from Mrs. R. M. Evans.

In the endeavor to put the health magazine, Hygeia, published by the American Medical Association, before the people, the Kentucky State Medical Association and the Woman's Auxiliary jointly sent a six months' subscription to each of the members of the 1928 Legislature.

On May 22nd, letters were sent to the State officers and Hygeia chairmen, calling their attention to the offer made in the Journal by the Kentucky State Medical Association, of $25.00 in Hygeia subscriptions to the Councillor District having an organized Woman's Auxiliary for every County Medical Society before the next Annual Meeting, September 10-13, at Richmond.

The first Year Book of the Woman's Auxiliary, Kentucky State Medical Association was compiled by Mrs. A. T. McCormack and published in June. Copies were sent to all members of the State Auxiliary, officers of the Auxiliary to the American Medical Association and officers of the Auxiliary to the Southern Medical Association. This book contains directories of the County, State, National and Southern Auxiliaries; an outline of the duties of officers and members; the State Constitution and By-Laws and a suggested Constitution and By-Laws for Counties to be adapted as members see fit to suit the needs of the county auxiliary.

CARLISLE COUNTY REORGANIZES

The Woman's Auxiliary to the Carlisle County Medical Society was reorganized by Mrs. V. A. Stilley, Benton, Councilor of the First District, July 2, 1928 in the office of the Carlisle County Health Unit at Bardwell.

The new officers are: President, Mrs. R. K. Galloway, Bardwell, and Secretary-Treasurer, Mrs. G. W. Payne, Bardwell.

The new members are: Mrs. R. C. Burrows, Cunningham; Mrs. W. Z. Jackson, Arlington; Mrs. W. L. Mosby, Bardwell; Mrs. R. K. Galloway, Bardwell; Mrs. G. W. Payne, Bardwell

Associate members are: Mrs J. T. Bagby, Arlington, and Mrs. Edward Neal, Bardwell.

Miss Mayme Sullivan, Louisville, State Chairman of Hygeia and Mrs. A. T. McCormack, Louisville, were also present and each spoke briefly of the work of the Auxiliary.

BALLARD COUNTY ORGANIZES.

The Woman's Auxiliary to the Ballard County Medical Society was organized by Mrs. V. A. Stilley, Benton, Councilor of the First District, July 3, 1928 at the home of Mrs. G. L. Thompson in Wickliffe.

The new officers are: President, Mrs. G. L. Thompson, Wickliffe; Secretary-Treasurer, Mrs. W. A. Page, Barlow; Chairman of Hygeia, Mrs. W. A. Ashbrook, Route 2, LaCenter; Chairman of Historical Collection, Miss Irene Sullivan.

Others present at the meeting include Mrs. T. J. Sullivan, Wickliffe; Mrs. Ezra Titsworth, Bandana; Miss Mayme Sullivan, Louisville, State Chairman of Hygeia and Mrs. A. T. McCormack, Louisville, State Parliamentarian.

BOOK REVIEWS

PUBLIC HEALTH LAW. By James A. Tobey, M. S., L. L. B., Baltimore: Williams & Wilkins, 1926. 304 pp. Price $4.50.

As a guide to the health officer on the elementary principles of law and in the fundamental principles of public health, this book will serve a most useful purpose.

It is also valuable to those teaching public health, partly because of the arrangement of its contents and the method of presentation.

Chapters on sources of public health lay are included, such as: Police Powers and Public Health, State Health Departments, Special Powers of Health Departments, Control of Communicable Diseases, and Nuisance Sanitation.

New health officers will be particularly interested in the sources of their legal foundation and the responsibilities put upon local health departments by law. This book is of considerable value to all those engaged in public health work.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Bullitt: The Bullitt County Medical Society met at the courthouse in Shepherdsville, June 1st, 1928. Those present were:

Drs. G. W. Kirk, S. H. Ridgeway, W. S. Nappen, G. G. Dodds, G. W. B. Hill, R. N. Holbrook.

Dr. R. N. Holbrook was elected to the office of Secretary to succeed Thos. E. Craig, who has removed to Louisville.

Dr. Ridgeway related certain facts concerning the proposed full-time County Health Department for Bullitt County. Dr. Kirk announced his intention of applying for the office of health officer.

Case reports were given and discussed.

Next meeting at Lebanon Junction on July 12.

R. N. HOLBROOK, Secretary.

RESOLUTIONS OF THE ATTENDING PHYSICIANS OF THE POST-GRADUATE COURSE OF THE KENTUCKY MEDICAL ASSOCIATION.

Whereas, the Kentucky State Medical Association has seen fit to sponsor a summer Post-Graduate Course for the physicians of Kentucky and sister states, and feeling that we have received very great benefit therefrom; therefore be it

Resolved: That the following resolutions of appreciation be adopted:

1. We wish to express our appreciation to Dr. Philip F. Barbour and his co-laborers who have so unsparingly given of their time and energy to make of this course such an outstanding success.

2. We are deeply grateful to Dr. A. T. McCormack and the other members of his staff, and to Miss Rebecca J. Runner in particular, for the kindly interest they have manifested in our welfare and the very great assistance they have rendered in making our stay both pleasant and profitable.

3. To the staff, assistants, internes, and nurses of the City Hospital we would especially express our appreciation for the many courtesies extended to us.

4. To the Children's Free Hospital and to Waverly Hills Sanatorium, we wish to extend our thanks for the sumptious luncheons, and to these and all the other hospitals that have so cordially invited us to their clinics and operating rooms, we wish to exress our many thanks.

5. Be it further resolved that it is the sense of this committee that this course having proven so practical and beneficial to all attending, therefore, we recommend that it be continued from year to year.

L. S. HAYES,
OSCAR ALLEN,
C. T. JONES,
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Being the Journal of the Kentucky State Medical Association
Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets. Subscription Price, $5.00 Single Copy, 50 cents
Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowling Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8, 1917, authorized May 25, 1920.

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., OCTOBER 1928 No. 10

EDITORIAL

STATE EPIDEMIOLOGIST

The medical profession and the people of Kentucky have been continually grateful to John D. Rockefeller for the material assistance he has extended to the State Board of Health in the development of its splendid structure for the protection of the health and lives of our people. Since 1911, the Rockefeller Foundation has made a larger contribution to public health in the United States, and in foreign countries, than all other agencies combined. With statesman-like foresight, all their contributions have been made through, and with a view to the development of, official public health agencies. The State Health Department of each State has been given absolute freedom in the development of its policies, but the Foundation has wisely required the greatest accuracy, both in budgeting and accounting, for moneys provided. The financial assistance extended to our State Board of Health has varied from between $12,000.00 to $25,000.00 each year, but this small contribution, wisely handled, has resulted in the expenditure of between $150,000.00 and $250,000.00, in each annual period by the State and Counties.

For the money granted to Kentucky for public health work the profession is duly grateful, but the fine leadership of Mr. Wickliffe Rose, who was the Director of the Rockefeller Commission for the Eradication of Hookworm Disease, and Doctor John A. Ferrell, who has been the Assistant Director for the United States for the Health Section of the Rockefeller Foundation, has been worth far more to us than any amount of money. Their thoroughly sympathetic and constructive attitude in the consideration of all our health problems has been the main factor in the development, both of the remarkable morale which is evident in our public health personnel; and also in the securing of that public confidence that has been our greatest asset.

For many years we have realized that the weak point in our development was the lack of an all time epidemiologist. This work has been divided between Doctors McCormack, South, Blackerby and Mr. Dugan, but epidemiology has developed into one of the major specialties of public health, and for a long time our State Board of Health has felt the necessity for the employment of an experienced epidemiologist who could act as a consultant, either to our local health departments or to the medical profession, in counties where diseases approached epidemic proportions or where epidemics threatened.

Through a grant made this year by the Rockefeller Foundation, the State Board of Health has been able to secure the services of Doctor J. L. Jones. Doctor Jones took his public health course at Harvard, and was afterwards connected with the faculty at Yale and Cornell. He has had broad training and experience in the whole public health field, majoring in epidemiology. His services are now available for any health department in the State which is in need of them.

PELLAGRA

Reports coming to the State Board of Health on the Pellagra situation in Bell and adjoining counties caused an investigation by the State Epidemiologist, Doctor J. L. Jones. After a careful study under the guidance of Doctor M. D. Hoskins, County Health Officer, cooperating with the physicians of Bell County, Doctor Jones reports that Pellagra appears to be not only one of the most important causes of sickness and death in Bell County, but one of the most important causes of suffering and lack of physical well being, and one of the most important complicating factors of other diseases. He found that there were more than a thousand cases of this disease in Bell County. It was apparent from the investigation in Bell County that a similar situation confronted the profession in several adjoining counties.

As a result of this investigation, Doctor McCormack and Doctor Blackerby were courteously requested by Doctor Ed Wilson, President of the Cumberland Valley Medical Society, to attend its recent session at Dishman Springs, and the entire morning was devoted to the discussion of this important problem. This conference was one of the best we have ever seen. Seventy-three of the progressive physicians of Southeastern Kentucky participated in its consideration.

It was the concensus of opinion that Pellagra has again assumed epidemic proportions in Southeastern Kentucky; that it develops chiefly in the undernourished, especially those victims of other wasting diseases. It was recognized that, as a rule, Pellagra does not develop in those having a broad diet of fresh meats, milk and the green vegetables, but it was also made evident that on account of the economic condition of money of the victims of this disease, it is practically impossible to expect them to secure such a preventive diet. The researches of the scientific experience of the U. S. P. H. S., have developed the important fact that in brewers yeast, which can be supplied at an average of 10c per week per person, we find such a large concentration of the Pellagra preventive elements that this can be used as a substitute for the effective diet, which would not only prevent this disease but would add so much to the welfare and usefulness of these people. The Journal is glad to call the attention of the profession of the State to the fact that this yeast is available at the price of 22c in two pound packages and at 19c a pound when ordered wholesale. It can be purchased from the Vitamin Food Company, Westfield, Massachusetts, at these prices. The scientific director of this concern is our own beloved R. N. Allen, the former Director of the Food and Drug department at the State University. There are many other forms of yeast equally available, but all of them are more expensive and none of them are more valuable.

There was no concensus of opinion in regard to the medical treatment of the disease, beyond the recognized fact that the addition of yeast to whatever other form of treatment is indicated is essential in the undernourished cases. Many of the physicians present indicated that they would try various forms of therapy with careful controls with and without yeast, and we anticipate valuable contributions to the therapy of Pellagra by the fine practitioners of this section.

KENTUCKY'S INSANE PATIENTS

Statistics from the United State's Department of Commerce indicate that insanity in Kentucky is increasing. Many of these patients, and all of them, should have consulted physicians before the development of definite mental derangement. Probably the majority of them could have been relieved had they had a thorough physical examination and have had their defects corrected at the proper time. Doctor Cotton has conclusively demonstrated the value of oral hygiene in the prevention and cure of insanity in the State institutions of New Jersey.

Money expended for public health is returned in compound interest to the State by diminishing unnecessary mental and physical sickness. The following figures from a recent news item in the Lexington Herald will be of interest to every well wisher of our State:

"The Department of Commerce announces that the three State hospitals of Kentucky had 1,209 first admissions in 1927, as compared with 1,161 in 1926, and 1,169 in 1922. These first admissions represent patients who had not previously been under treatment in any hospital for mental disease. The first admissions numbered 47.6 per 100,000 of population both in 1927 and in 1922. The number of mental patients under treatment in the State's hospitals increased steadily from 3,487 on January 1, 1910, to 4,973 on January 1, 1923; and the ratio of such patients per 100,000 of general population increased from 152.3 on Jan. 1, 1910, to 195.3 on Jan. 1, 1928. Of the first admissions in 1927, there were 708 males and 501 females, and of the patients present on Jan. 1, 1928, there were 2,703 males, 2,270 females."

The Old Head Injury Case. One hundred old head injury cases were studied by Joseph M. Michael, Minneapolis (Journal A. M. A., April 14, 1923), with special reference to the degree of the vocational handicap, the neurologic complications and the probable factors in their production. His conclusions are: The prognosis for life of the patients overcoming the immediate complications is very favorable, excepting those who incurred penetrating brain injury. Freedom from invalidity is uncommon. Careful, early treatment will do much to prevent chronic invalidity. Increased intracranial pressure and signs of local irritation are the only indications for surgery on the head in the acute as well as the chronic case. Handling of the patients with intractable head injury syndrome constitutes a problem of great magnitude.

PRESIDENT'S ADDRESS

WHAT IS ORTHODOX IN THE HEALING ART?*

By Jno. H. Blackburn, M. D., F. A. C. S.,
Bowling Green.

Mr. President, Ladies and Fellow Members of the Kentucky State Medical Association: It has been the custom for many years for the incoming President on occasions of this nature to devote the opening paragraphs of his address to an expression of appreciation for the honor conferred upon him, so much so in fact, that it has become a habit which is expected to be repeated year after year.

However, when we consider the history of medicine in Kentucky, when we contemplate the large number of outstanding characters who have made the medical history of Kentucky, McDowell, Brashear, Dudley, Gross, the Yandells, Bailey, McCormack, and many others of like fame, and when we think of the many really illustrious men who have graced this chair surely, then, any physician who loves his profession and his state would fail in his obligation should he not feel and exhibit a genuine sense of gratitude for this the highest honor to be granted him by his fellow practitioners. And with this thought in mind I desire to express to you, my friends of the House of Delegates and of the profession of the State at large, my sincerest and deepest appreciation for the confidence and faith manifested by you in me in making me your presiding officer for the year.

In a contemplation of the subject to be considered on this occasion there was an inclination to mention the many general questions that are a matter of vital concern to the profession at this time such as medical education, public health, state medicine, the rural community problem and others of similar import, but the decision has been reached to limit the discussion to one phase of professional interest, to a matter that has disturbed regular practitioners of medicine for practically all time, "What is Orthodox in the Healing Art?"

In discussing this subject we should first consider the meaning of the word orthodox in relation to the science and art of medicine. In the ordinary use of this word in its religious sense it is presumed to mean a strict adherence to the faith of the fathers, a rigid conformity to the practices of the leaders of the faith, that which is sound in doctrine and practice. Ordinarily we use the word orthodox to mean that which is approved or accepted. In its strictly etymological sense it means "right thinking."

Unquestionably, it will be agreed that the early history of medicine was founded upon the unqualified acceptance of the teachings and practices of "the fathers", their ideas and dogmas being handed down from generation to generation, and being adhered to with an unchallenged faith. Later came the period when experimentation and observation showed the fallacy and error of many of the teachings of "the fathers", and these ideas were discarded for those which conformed to the facts as found in practice and in experiment, things that were accepted and approved as the result of trial and proof.

Today, we believe that the art and science of medicine are both based on the results of "right thinking" in relation to the normal and the diseased human body. With these qualifications of the use of the word orthodox we believe we can very properly discuss the orthodoxies and heterodoxies, so-called, of medicine, the "pathies" as they exist today, with a view of determining which system is really entitled to the thoughtful consideration of thinking people.

It is true that the early practice of medicine was based largely on the precepts and tenets of "the fathers", these being their beliefs and credulities which were founded in many instances on superstitions and assumptions rather than on scientific data. In truth there was in those days no real science to guide in matters of this sort, and medicine had to await the development of the allied sciences for its full fruition.

Thus the invention of the microscope led to the development of the fields of bacteriology and pathology; chemistry laid the foundation for the investigation and study of materia medica, anesthesia, sera, and ultimately immunity and biological chemistry. So we find that Davy opened the way for Simpson and Crawford Long; Pasteur was the pathfinder for Lister; and Villemon, Cohnheim and others were preparing the field for Koch.

The growth of truth is always a slow process, a gradual evolution, and its acceptance is conditioned largely by the state of knowledge of the times. Hence the delay, in the early days of medicine, of any real progress and improvement. And for the same reason our conceptions regarding the nature of many diseases have been revolutionized within the past few decades, these rapid changes coming as the result of the combined study of these conditions by the clinician (internist and surgeon, pathologist, chemist, bacteriologist, epidemiologist and sanitarian.

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*Read before the Kentucky State Medical Association at Richmond, September 10, 11, 12, 13, 1928.

In the early days of medicine the physician was occupied solely with the care of the sick, his whole duty being the effort to relieve the symptoms of some preexisting condition. Later it was recognized that many diseases were due to the presence of a particular causative agent, and this discovery became the basis for the building of the broader science of preventive medicine.

You are all, of course, familiar with the vast amount of work that has been done in the various fields of medicine and surgery, but a recital of the investigations of Pasteur and Koch on bacterial diseases reads like a romance indeed; and following these are found the researches of Manson and Laveran on the transmission of disease by insects. Coincident with the study of these infectious diseases was the discovery and elaboration of sera and antitoxins as curative and preventive agents, and an understanding of immunity and its relation to various diseases. Just as a reminder, may we recall the work done in the prevention and reduced mortality rate in typhoid fever, diphtheria, yellow fever, malaria, tuberculosis, cholera, tetanus, small-pox, hydrophobia, dysentery and hookworm disease. Today very serious study is being given to scarlet fever, cerebro-spinal meningitis, infantile paralysis and measles; and the assurance is given that most of these will soon be in truth preventable diseases.

In recent years the most active efforts have been in the prevention of diseases, first in a study of infant mortality and its causes, prenatal and postnatal, and with an immediate effect on longevity. Next in order came the diseases of old age, and at this time much thought and attention are being devoted to the diseases of middle life, disorders of metabolism, and diseases of the heart and kidneys, with a view to preventing the conditions formerly so prevalent in the aged.

Throughout the ages the true disciple of Aesculapius has always been filled with that spirit of altruism that makes his a life of service for some one else; and his conduct has been motivated by that merciful and humane spirit that would make him willing if need be to lay down his life for his people. Many have made the supreme sacrifice under the stress of circumstances attending war and pestilence, but all the more homage and honor to that heroic soul who is willing to subject himself to the doubtful and uncertain outcome of an experiment with an unknown cause of some obscure disease whether he be a world-known scientist or a private in Uncle Sam's Army.

With the exhibition of such an array of facts, setting forth the position of so-called regular medicine in the investigation of disease in all its varied manifestations, in the study of the normal body and its responses to the entrance of invading agents, in the use of every available means of studying and understanding practically every phase of human life from prenatal existence to old age, you will at once ask why there should be any cults in the healing art. Have not the traditions, usages and practices of the regular profession been such as to inspire the confidence of the public at large and to merit the loyalty and undivided allegiance of the entire populace? Many are inclined to "blame the doctor" for the existence of such a state of affairs, this opinion at times being expressed even by some members of the profession. However, it can doubtless be shown that there are other more plausible and mundane explanations for such a condition.

Primarily, "old human nature" is a very deciding factor in the production of such a situation. There are certain traits and tendencies, biologic in nature and ancient in origin, that manifest themselves on occasions in many of us. There is found in many individuals a feeling of awe or respect for the mysterious and obscure, scientific explanations of apparent facts not satisfying so readily as something that appeals to the love of the obscure. This was formerly demonstrated by the use of charms and amulets as a means of preventing disease, and if our senses deceive us not, such a belief has not entirely disappeared. Who of us has not seen the rabbit foot, the horsechestnut, or the bag of asafoetida hung about the neck? Men, and women, consult mediums today, just as the ancient Greeks and Romans sought relief and comfort from their soothsayers. It will be recalled that Saul consulted the witch of Endor, going to her by night, seeking information that could not be secured by appealing through the ordained prophets because of his failure to obey the voice of the Lord.

During all time there has been a desire on the part of humanity for some sort of a miraculous cure for any bodily affliction that may develop. Many individuals have a preconceived idea as to how they should be treated, often wanting to be cured in some particular way, this idea depending upon their own conceptions as to the nature and cause of the ailment . If the regular physician does not meet the requirements, the sufferer can, as a rule, find some healer of some particular school or cult who is willing for a consideration to administer the treatment desired.

In the everyday work of the average practitioner he sees repeatedly the effect of the imagination both in the production of disordered states of mind and body and in their relief. Who of us has not observed the development of certain nervous symptoms in one or more individuals who have witnessed a dramatic attack of hysteria major. And how often are we led to believe that the rather mystical relief of certain distressing symptoms was in large measure due to the confidence and faith of the patient in the attending physician? Certainly any intelligent physician will give due attention to the effect of an active, vivid imagination on the conduct of a susceptible patient. Is there one of us oldtimers here who has not stood by and witnessed the magical relief secured by the patent medicine vendor of the old days, who gave his audience all sorts of aches and pains and who then produced immediate relief by the application of his sovereign remedy?

Another human trait that is frequently a factor in our conduct is credulity. Many of us are inclined to believe anything that is heard, accepting any sort of a statement with unquestioning faith. Nor is it necessary that the proponent of the allegation be, in any way, an "authority", the assertion of some tyro being as readily accepted as the declaration of an academician.

The average individual exhibits more credulity and more ignorance in relation to the structure and functions of the human body, and in connection with its disorders and diseases, than in other phase of human life. Osler very truthfully stated in one of his addresses (Treatment of Disease) that "In all matters relating to disease credulity remains a permanent fact, uninfluenced by civilization or education."

We are inclined to attribute this blind, indubious credulity to ignorance, usually expecting it in the illiterate and uneducated classes. However, this same acquiescent faith in some absent treatment or in some necromantic manipulation or adjustment has frequently been displayed by some member of one of the learned professions, usually the lawyer or minister, and they have often sought secret relief at the hands of one of the irregulars for some real or imaginary ailment that did not quickly yield to the treatment of a regular practitioner. The unfortunate fact is that in too many instances the irregulars are consulted first for some apparently mild condition, and valuable time is lost during which a malignancy reaches an incurable and inoperable state, whereas an early treatment by recognized means, surgery or radiation, would have given immediate relief and permanent cure.

Taking into consideration the superstitious nature of man and the lure of the obscure, the imagination and its play upon the emotions, and the credulousness of the average individual, we find a rather satisfactory explanation for the gullibility of a so large part of the human race and their readiness to accept the claims and assertions of the veriest chalatan. Years ago Dr. Brown remarked in his "Spare Hours" that "quackery and the love of being quacked are, in human nature, as weeds in our fields."

An analysis and consideration of the teachings and practices of the various systems and schools of healing leads to some rather striking comparisons. In the first place the regular system of medicine is founded upon a careful study of the human body in all its physiological and pathological relations. The average cult does not require any study of this kind, except as a means of meeting legislative requirements, only because Boards of Health of the regular school have secured the enactment of laws making the study of certain fundamental branches obligatory.

As the science of medicine has broadened with the years, the preliminary work required of the medical student in the collateral sciences has been enlarged and the intensive training of the school and hospital has been increased until at this time the graduate in medicine is, in truth, a rather widely trained scientist. On the other hand an entrance into the school of any one of the so-called irregular systems does not require any preliminary training whatever, the grocery clerk or blacksmith being on equal footing with the high school graduate or the unsuccessful lawyer. In addition, the studies of the average cult are in a large measure devoted to the methods and manipulations of that particular system.

In the regular system of medicine the effort is always made to find the cause of the existing disease or syndrome, whether it be some extraneous agent of bacterial origin or otherwise; whereas, in the different cults all symptoms are believed to be due to pressure on nerves, mal-positions of vertebræ, errors of conduct or relations, or some such single maladjustment.

The system of therapeutics of the regular school consists in the removal of the cause in each case, if possible, using all such means as diet, heat, light, radiation, climate, physical therapy, etc., in addition to the administration of drugs. In turn the method of treatment of each of the cults is limited to a single type of manipulation, adjustment, or treatment, absent or present. What would you think of your auto mechanic if he should insist on adjusting your carburetor every time you ran your car into the garage, whether with a flat tire, a missing spark-plug, or one of the headlights out?

It is believed that as a rule the motive that has prompted the expenditure of labor, time and money necessary to complete the study of medicine with its exacting requirements, has been a real genuine love of humanity and the desire to be of service to mankind, in the very highest sense, a calling in life. If the literature distributed by certain of the cults to prospective students, is an index, then the appeal is not to the high ideals of altruism, but rather that the adjustor or manipulator may treat so many cases per day at so much per, and thereby fill his pockets with the filthy lucre.

After all this discussing of cults and conditions, it may very logically be questioned, "What, in a practical way, may be done about it all, here in Kentucky?" Throughout the State, and especially in the rural communities, there is a recognized need for physicians. With our present rigid exactions regarding preliminary work and entrance requirements, and with the length of time and expenditure of money necessary to complete the present school and hospital course of medicine, the supply of fully trained physicians is entirely inadequate. On the other hand certain of the cults are turning them out wholesale, and getting legal recognition through their special boards for all who come, so that our people are rather naturally going first to the "doctor" nearest at hand.

It is not for a moment desired that the standards of the present should be lowered, either as to preliminary work or in the curriculum, but some sort of a practical scheme should be formulated whereby the student could be allowed to do practice in the rural communities for a time before final graduation, and in this way meet a very distressing need. If the Kentucky State Medical Association working in conjunction with the University of Louisville Medical School can bring about such an arrangement, the immediate care of the sick of a large part of the state will be met in a scientific way, the health of the public generally will be conserved to a great extent, and the tendency of many of our people to follow off after the cults of different sorts, will be curbed.

Some years ago Heywood Broun, the columnist, very aptly remarked that "Among all the orthodoxies of the world, medicine alone has kept its apostolic line unbroken by permanent and serious secession. Much has been done by men who were outside the fold. Medical martyrs are numerous. The regulars have persecuted and slain their scores of saints in every age. But in the course of time they have never failed to canonize them. Medical justice may be slow-footed but it grinds finer than the mills of any other profession."

In the State of Kentucky we still have with us quacks and charlatans, not as a result of the shortcomings of the profession as a rule, but more on account of the pernicious political activities of certain one-time doctors who are now outside the fold. If we as a whole maintain the ideals of our former leader in preserving and protecting the health of our state, it is only a question of time until we shall be rid of all such irregulars.

What, then is orthodox in the healing art?

First, we would suggest that that is an orthodox *system* of healing which is built upon a scientific study of the human body in all its physiological and pathological relations, rather than upon the preconceived religio-medical idea that there can be only one character of disturbance causing all symptoms, and that in the spine or head.

Secondly, that is an orthodox *practitioner* of the healing art who recognizes the fearful and wonderful construction of the human body and its remarkable responses and adaptations to internal and external stimuli; and who calls to his aid all the collateral sciences in his efforts to prevent and cure disease, rather than adopting one method of manipulation or adjustment for the relief of all symptoms.

Thirdly, that is an orthodox *public*, who regardless of all social and education considerations is willing to lay aside all credulities and mysticisms and accept with unquestioned faith the teachings and practices of an orthodox practitioner of the orthodox system of healing.

Results of Gallbladder Surgery. In a series of ninety-one cases analyzed by Graham, there were seven deaths. In the chronic cholecystitis group without stone formation, there were fifty-two cases and one death, that one death occurring a year later as the result of a recurrence of a duodenal ulceration, for which a gastro-enterostomy had to be performed. The other six deaths occurred, with one exception, when the disease had progressed to the formation of stone, and in that instance there was an associated intestinal obstruction in a patient five months' pregnant, who miscarried seventy-two hours after operation. In view of the inefficiency of other forms of therapy in controlling sequels and relieving symptoms of gallbladder disease, Graham urges that surgical therapy should be instituted, preferably in the early stage of the disease prior to the onset of complications, at which time the mortality is practically negligible; and further that such surgical therapy, judiciously applied, will cure 66 per cent.

ORATION IN SURGERY

THE DIAGNOSIS AND MANAGEMENT OF ABDOMINAL EMERGENCIES.*

By Raymond M. Evans, M. D., Louisville.

I shall not burden you with any surgical technic or details, but I do wish to bring to your mind a few salient points in regard to the diagnosis of surgical conditions in the abdomen, and more particularly of the emergency or acute type. When any physician, in his daily routine, is called to see a patient of this nature, not only is his reputation and future welfare at stake, but a precious life which may be hurried to its eternal resting place.

It should be an interesting and fascinating problem to a medical man to attempt to diagnose an obscure acute abdominal condition without the aid of the laboratory and other facilities of modern science. It should be thrilling to him to grapple with these problems, unaided by nothing other than his special senses,—sight, touch and hearing—coupled with the exercise of good common sense and sound judgment.

A complete history and a thorough physical examination should be the routine procedure before any laboratory test is attempted. Not until then does one know just what supplemental work is necessary or indicated, and delay of a few hours awaiting reports may result in a calamity. In coping with these hazardous cases the physician should apply well his clinical experience. His surgical judgment and acumen should be exhibited, so to speak, to the nth power, and every source available for a timely diagnosis should be brought into play. Every effort should be exhausted to bring home to the patient, relatives, and friends that delay will cause an inevitable tragedy.

The formidable death rate, so uncalled for in these patients, is in most cases due to indifference on the part of the medical men as well as the surgeon. We both equally should share the blame.

The late Doctor John B. Murphy said that in every death from appendicitis somebody is to blame. If this is true we of the profession should at least attempt to manage these patients so that each one of us may have a clear conscience and an unstained escutcheon.

The urgent night calls and surgical operations that should be attended to immediately are often delayed till morning due to desire not to interrupt routine or to indifference on the part of the physician or surgeon. Why one should assume the burden for the possibility of an acute fulminating gangrenous appendicitis perforating by waiting till morning or until office hours are over is to be explained only from an unscrupulous selfish standpoint with no idea of the patient having, as he should, the primary consideration.

On the other hand I see no reason why an internist or a surgeon should fail to be enthused at the opportunity to make diagnoses in these patients. To any one, these acute conditions should be most enchanting and the more obscure, the more interesting.

After a careful history, followed by the dextrous use of his eyes, ears and hands, even though in the wilderness and miles from a microscope or blood pipette, not to mention x-rays and other paraphernalia, an experienced clinician should readily sound the depths of the situation and arrive at a clean cut diagnosis in most instances. In those few exceptions in which he cannot be positive he can at least determine the surgical nature of the diseased condition.

The policy of further observation of the patient before making a decision should be relegated to the past and the profession should at all times assume a more diligent and progressive attitude. One can diagnose acute appendicitis easily, as a rule, but the pathological condition cannot be determined until the specimen is out of the abdomen. Even then only the gross pathology can be ascertained. At operation both the clinician and surgeon are often surprised and disappointed in turn when the appendix is delivered through the incision and found to be catarrhal instead of gangrenous and vice versa.

To tell a patient he is safe to wait till morning but should be kept under observation on account of no fever, low leukocyte count, and other apparently favorable signs, is utter folly and very hazardous. The sudden relief of pain and apparent general improvement in an acute appendix is oftentimes the patient's death knell. Such phenomena are very deceptive to the patient and relatives and even to the physician and surgeon. We should have the courage of our convictions and the stamina of our profession to impress upon the patient and the family the hazardous situation to be met and dealt with *promptly,* and without fear or favor. When confronted by the question: "Is this a dangerous operation?" tell them franky all operations are dangerous, but the safest and best procedure is to resort to surgery without procrastination. The preceding remarks apply just as well, and in some instances with more emphasis, to other acute lesions, for example, internal hernia, intussusception, volvulus, perforated peptic ulcer or gallbladder, perforating wound of the intestines, ruptured ectopic pregnancy, and twisted ovarian pedicle.

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*Read before the Kentucky State Medical Association, at Richmond.September 10, 11, 12, 13, 1928.

In all acute abdominal cases pain is the paramount symptom. The differential points in diagnosis are usually brought out in the history and physical examination. However, in those rare instances in which an error is made in diagnosis a speedy exploration under favorable circumstances, in this day of perfected local and spinal anesthesia, should do no harm to the patient. Such an error should be commended rather than frowned upon.

Upper abdominal pain, in the epigastrium or right hypochondrium, colicky in nature, may be the beginning of an attack of acute appendicitis. But if the pain is severe and of the excruciating type, radiating to the right shoulder, in a woman about the age of forty, who has borne children, and perhaps has had typhoid, with a previous history of icterus and colicky attacks which doubled her up and "cut off the breath," requiring hypodermics of morphia for relief, with a previous history, too, of dyspepsia and gaseous distension and eructations, especially after a carbohydrate meal, localized tenderness and rigidity over the gallbladder region—this is the classical picture of gall stone colic. If these symptoms persist over a few hours and the patient's condition becomes critical instead of being one of very manifest improvement, perforation of the gallbladder may have taken place, which will be followed by the typical signs of a generalized peritonitis.

If the patient be a man in the fourth or fifth decade with a previous history of periodic spells of dull aching pain, gaseous distension, and sour stomach 3 or 4 hours after meals, relieved by food or soda, and complete freedom from trouble in the interval between the spells, and after a large meal is suddenly seized with an agonizing pain unusually severe and excruciating—described as "stabbing" in character—nausea and emesis, with exquisite tenderness and boardlike rigidity in the epigastrium—this is the picture to be seen in a perforating peptic ulcer. There may be blood in the vomitus, but we must not lose sight of the so-called gastro-toxic hemorrhage found in 5% of gallbladder and 2% of appendiceal cases.

Acute pancreatitis is very rare and usually demands immediate surgical drainage if the outcome is to be favorable. The train of symptoms and signs are not unlike that of a perforated peptic ulcer. The diagnosis is usually the latter. However, upon exploration the pancreas will be found to present the typical hemorrhagic areas and even a purplish color with the usual yellowish areas of fatty necrosis in the peritoneal cavity. A part or almost the whole of the pancreas may be found in the center of an extensive abscess cavity. Blackford, June 27, 1928, reported two cases of abdominal tumors with acute onset of pain simulating aneurysm. In both cases on auscultation over the tumors and over the aorta distal to them were heard bruits. In one case, that of a man aged 51, there was a pulsating mass palpable, in the left epigastrium, but it was not expansile. The roentgenologist in screening the stomach noted "marked pulsation in the splenic area." He gave a past history of repeated gonorrheal infection and history of his wife having had two miscarriages. This prompted a blood Wassermann which proved negative. Exploration of the upper abdomen was advised. A tumor with stony hardness was found in the body and tail of the pancreas with many nodules in the liver. The patient returned home and died three months later.

The other patient was a young man who went to the clinic on account of an acute pain in the back which came on suddenly when he cranked a cold Ford. Two years previously the left testicle had been removed for a tumor which proved to be a small spindle cell sarcoma. He was seized with severe cramping in the left lumbar region radiating to the left scrotum. A huge pulsating mass was palpable in the upper left abdomen extending to the umbilicus with the same signs as in the preceding case. A diagnosis of retroperitoneal tumor of metastatic origin was made and deep irradiation given. Six weeks later the patient returned for another course of treatment and at that time he was free of pain, the mass had disappeared, the vertebral column was palpable and the bruit had disappeared. In the meantime he had returned to his work.

Desjardins, in his discussion of these cases, remarked that malignant embryomas, which constitute about 75 per cent of the tumors of the testies, are very sensitive to irradiation and this sensitiveness enables one to distinguish this variety of tumor from other varieties such as carcinoma, sarcoma and true teratoma.

Colicky pain in the epigastrium, or just above the umbilical region, radiating to all parts of the abdomen, a history of acute constipation or at any rate no diarrhoea unless an aperient has been administered—the pain a few hours later localizing in the lower right quadrant, with localized tenderness and rigidity—this is the vivid text book description of an acute appendicitis. There may be, and usually is, a history of previous similar attacks, perhaps the patient being confined to bed or possibly up and about his duties, but with a residual soreness in the region of McBurney's point lasting some two, three or more days following the attack. There will be a history of aggravation of this condition upon walking or exercise. In fact, many attacks are precipitated by athletic exercises, for example, tennis, baseball, foot ball, basket ball, or horseback riding. There may be nausea, or vomiting, but in many cases it is lacking. The temperature in most instances is normal or subnormal. If there is the slightest fever, or a distinct rigor in children, it usually means a complications has arisen, perhaps an abscess, perforation, or at least a suppurative condition in the appendix itself. It is not unusual to find considerable distension of the abdomen incident to stasis and gas in the bowel as a result of nature's effort to immobilize the peritoneal viscera.

Some time ago I could readily palpate the appendix, markedly distended as it was, in a child 5 years old with the caecum and ascending colon inflated and pushing it anteriorly against the abdominal wall. It could easily be rolled under the examining fingers, exhibiting its veritable vermiform character. Upon incising the abdomen it literally popped out of the peritoneal cavity and had the appearance of a rubber balloon attached to the caecum as a stick. It was some six inches in length with a striking fusiform shape, measuring about one-half inch through its largest diameter. It is needless to say it made itself very accessible and a speedy operation was effected, which was very desirable on account of the child being a poor risk—due to the fact she had a tuberculous spine and recently had been exposed to whooping-cough which developed while in the hospital.

One should think of the appendix always as the most common cause of acute conditions in the abdomen, but the mere fact that we have a classical case of appendicitis is no reason why we should operate without care, or on a haphazardous diagnosis. The following case, that of a child 5 years of age, seized with sudden excruciating pain in the right lower abdomen of about 10 hours duration, should illustrate this point. I was called by a clinician to meet the patient at the hospital for an emergency appendectomy. The boy had a temperature of 102 degrees, a leukocyte count of 16,000, and was very tender and rigid in the lower right quadrant. On further observation the right costal margin was more or less fixed, the left flaring freely, and on palpation a distinct Hoover's sign was demonstrated, confirming the immobility of the right lower chest. While the examination proceeded the alae of the nose were noticeably flaring and the child at times exhibited an expiratory grunt with a marked increase in the respiratory rate. Examination of the chest revealed definite signs of a lobar pneumonia. Subsequently he developed a right sided empyema for which a rib resection was done and he made a slow but uneventful recovery.

No diagnosis of appendicitis or any other condition in the abdomen should be made and operation done without a complete urinalysis of a fresh specimen. The specimen should be catheterized if a woman, and if a man, the second portion of a two-glass voided specimen should be examined. A careful microscopic examination of a centrifuged specimen should be made with particular search for pus and red blood cells, noting the number of each, if any, to the one-sixth field. Adhering to this routine will prevent many unnecessary operations.

The following case is a good example:

While doing diagnosis at a well known clinic, I was assigned to take the history and make the physical examination of an emergency appendicitis which had been referred from a few miles in the country, transported in an ambulance to the hospital for immediate surgery. The patient was a well developed robust man thirty-four years of age. There was a history of generalized abdominal pain of eight or ten hours duration, which had become definitely localized over the region of McBurney's point, with very definite localized tenderness and rigidity. The blood count showed leukocytosis, but there was a normal temperature. He had taken a large dose of castor oil soon after the onset of pain with satisfactory evacuation of the bowels. He gave no history of increased frequency nor dysuria. He was seen by two clinical consultants as well as by the chief surgeon and all confirmed the diagnosis. I was on the verge of sending the patient to the operating room—but awaited the urinalysis. The microscopic examination revealed an occasional pus cell and a few red blood cells. The patient was sent to the x-ray room for skiagrams of his kidneys, ureters and bladder, with the report of a suspicious shadow in the lower right ureteral area. When cystoscopy was done, obstruction to the catheter was met at the point in the lower right ureter corresponding to the shadow in the skiagram, and subsequent exploration showed this to be a stone. The stone was removed by uretero-lithotomy and the patient made a good recovery.

If I could accomplish one thing in this paper, and no more, namely, impress the importance of a routine urinalysis, I should feel well repaid for my efforts. This not only eliminates pyelitis and renal calculi, but may show renal conditions which would contra-indicate or limit surgery, and decide the kind of anesthesia to be employed. This applies particularly in children and pregnant women who are so prone to pyelitis. A casual look at the urine, asked for and voided in the presence of the physician, often solves the mystery of an otherwise obscure lesion.

It should be easy, ordinarily, to eliminate disease or trouble in a ureter. In an acute kidney lesion the fever usually runs higher than in acute intra-abdominal conditions, even 104 to 106 degrees. Chills are much more frequent, and as a rule the pulse rate is much lower. The leukocyte count does not vary so much and is seldom over 15,000 to 18,000 unless there is a perinephritis and in that case it may run exceedingly high, while in intra-abdominal lesions the leukocyte count is very variable. In Moore's report of 25 cases of pyelitis the temperature varies from 99.2 to 105 degrees. Twenty-two had pain in the loin and lumbar region. In 16 there was increased frequency and dysuria. The leukocyte count varied from 5,000 to 15,000, averaging 9,400.

I have already set forth the importance of a thorough examination but I wish here to stress a point for which I may be condemned by the laity, however, but I am positive I shall be supported in this view by every member of the Kentucky State Medical Society. I refer to a bimanual vaginal examination in every woman, with a marital outlet, married or unmarried, and otherwise a bimanual rectal examination. Preliminary inspection of the vulva will oftentimes reveal an acute, subacute or chronic specific inflammatory process which may be the basis of an extensive pelvic inflammatory disease, with double salpingo-oophoritis or double pyosalpinx, or inflammation en masse. No exploration of any abdomen should be made without such a step in the routine procedure, despite the fact it is often neglected through timidity or false modesty. Such commissions as the failure to make vaginal examinations are inexcusable and prove to be very embarrassing to the physician who leaves them undone. This step in a routine procedure will clear up an obscure lesion such as a twisted ovarian pedicle, and will determine the type of incision and method of approach in the surgical procedure. Acute salpingitis, strangulated myomas of the uterus and many other lesions thus may be found and diagnosed.

Some abdominal conditions are readily solved by the history, for example, food poisoning in patients exhibiting colicky pain, tenderness and rigidity, oftentimes nausea and emesis and a colliquative diarrhoea. Yet I have been called to do emergency operations on such patients for acute appendicitis.

Many simple points in the physical examination will clear up otherwise obscure cases and prevent needless surgery, namely the acute abdominal crises in a tabetic by the examination of his pupillary reflexes, or the lead line on the gums in the patient with lead colic. Many of these cases are operated and some authorities estimate that as high as ten per cent of tabetics are explored for intra-abdominal disease while in acute abdominal crises.

A small hard gland palpable above the left clavicle, the so-called Virchow or Troisier gland, is usually the telltale of a malignant condition in the lower chest or upper abdomen, and with a history of dyspepsia, usually means carcinoma of the stomach.

The routine digital examination of the rectum in the latter cases will often reveal metastatic deposits on the rectal shelf and save the patient an operation which is contra-indicated, even though this has no bearing upon acute abdominal conditions.

Cullen's sign, a bluish discoloration about the umbilicus may be responsible for an otherwise missed diagnosis of a ruptured tubal pregnancy or hemorrhage into the peritoneal cavity from other causes. And very few ruptured tubal pregnancies give the typical text-book history.

Unfortunately it is exceptional for diagnosis of tubal pregnancy to be made without symptoms, and these symptoms are usually those of rupture. Many of these patients lose their lives within a few minutes from hemorrhage and shock. The importance of a timely diagnosis and immediate surgical relief is shown in Schauta's collection of 123 cases operated upon in which there was a mortality of only 5.7 per cent, while in 121 other cases treated and not operated upon, the mortality was 86.89 per cent.

Suppression of the menses is not associated so regularly with this condition as with normal pregnancy, being noted in only 43 per cent of cases in a large series of patients observed by Murton, Orth and others. The usual text-book description gives the story of a supposedly normal pregnancy, or possibly even a slightly delayed period, frequently following a period of sterility, or a long period having elapsed since the last pregnancy.

In the cases of ruptured tubal pregnancy I have operated upon I note a few striking phenomena which I regard as very interesting. Most of them have given no history of amenorrhoea or passing shreds of decidua. Low abdominal pain has been present, which was lancinating and severe. There were rectal and vesical tenesmus, and one patient complained continually of severe pain in the rectum. The red blood cells were markedly diminished to as low as 2,000,000 to 3,000,000, and the hemoglobin 40 to 50 per cent with an enormous leucocyte count, averaging about 16,000 to 24,000. Four of these patients collapsed in the bath room. A pelvis mass was difficult to find on bimanual examination in some, but extreme tenderness in the vaginal vault and in either lateral fornix was noted in all cases. There was more or less generalized tenderness and rigidity over the abdomen, but more marked in the lower abdomen on the side involved.

It is a well known fact that angina pectoris may manifest itself by pain in the epigastrium or in the upper right abdomen and Riesman states that coronary occlusion may produce all the signs and symptoms of acute intra-abdominal catastrophe. Careful study, however, will reveal a terrific drop in blood pressure, collapse of the circulation, cold extremities, feeble heart sounds, perhaps a pericardial friction, leukocytosis, fever and, at times, an absence of the dorsalis pedis pulse. Undoubtedly many of the fatalities reported in the daily newspapers from so called "indigestion" are cases of this type.

At this point I wish to report a case to which I was called several months ago over long distance telephone. I was informed the patient was in dire distress with an acute cardiac condition and I was instructed to be prepared to administer heroic stimulation. Two physicians had been with her most of the day, but they had failed to give her relief and she was becoming rapidly worse. The history revealed the fact that she had collapsed about 12 hours before, sustaining a contused wound over the left eye with some bleeding which promptly ceased.

I drove hurriedly forty miles to the village and upon arriving found the patient a woman 25 years of age—pulseless and in a profound shock. There was a marked pallor of the face. She had severe abdominal pain. She had been married 5 years but had never been pregnant. There was no history of disturbed menses and she had just had a regular normal period. The heart was very rapid in action and the sounds were feeble. She was lying quietly in the dorsal recumbent posture and apparently afraid to move or alter her position. There was more or less generalized tenderness, as well as rigidity, over the abdomen, but more marked in the lower right quadrant. On bimanual examination no masses were palpable. The uterus was normal in size, in good position, and freely movable. There was marked tenderness in the vaginal vault and in either lateral fornix, but the tenderness was much more pronounced in the right tubo-ovarian region. One-fourth of a grain of morphia was given to the patient hypodermically, and she was transported hurriedly in an ambulance to the hospital, arriving some two hours later. The abdomen was immediately explored through a low midline incision under local anesthesia after she was reacted by saline and glucose infusions. As the incision was being made the laboratory personnel reported a red cell count of 2,400,000, hemoglobin 50%, and a leukocyte count of 24,000. A few inhalations of gas were given as the peritoneum was opened. The peritoneal cavity was filled with free blood and there were many large clots. The right tube was immediately delivered through the incision. In the ampulla was a small ruptured tubal pregnancy measuring 40x12 mm. The distal end of the tube was clamped and cut off. The pedicle was transfixed and ligated and a hurried closure of the abdomen was made. The patient reacted well from the operation and made a speedy recovery, leaving the hospital in a few days. A few weeks later her blood picture had returned to normal and she had regained her loss in weight and strength.

In patients who have scars from previous operations the appendix can ordinarily be ruled out. However, one must think of intestinal obstruction and eliminate this possibility before making any other diagnosis. The pain in these cases is more or less general over the abdomen, but usually not definitely localized. Vomiting is a symptom of import which is present in so many conditions and is not of so much value unless fecal in character—a condition which we should seek to forestall. Visible or palpable peristalsis, before marked abdominal distension or general peritonitis, is a very important sign. The one best diagnostic symptom is obstipation in an apparently very sick patient.

There are some rare lesions which may be seen in acute intraabdominal cases such as subphenic abscess which always occurs as a complication of some other condition. Most of these originate from a perforated appendix peptic ulcer or gallbladder. There will be high fever, perhaps rigors, and marked leukocytosis, with excruciating pain and exquisite localized tenderness and rigidity. There will be an immobile costal margin on the side involved and flaring of the opposite costal margin in marked contrast.

Sudden severe pain in the lower right quadrant of the abdomen in a typhoid patient, in the third week, with increased pulse rate and signs of shock, should indicate perforation. If you wait for obliteration of liver dullness and a high white blood count, operation will be too late to avoid fatality.

Other rare lesions are diverticulitis of the sigmoid, mesenteric thrombosis, and inflammation of Meckel's diverticulum. In these conditions it is almost impossible to make an accurate diagnosis, and one can do no better than recognize them as emergency conditions and advise immediate exploration. In any treatise or discussion on acute abdominal cases the appendix is to be thought of first, last, and always. It must be thought of first and always because it is the most common cause of trouble in these acute conditions, and it must be thought of last if we are not able to make a definite diagnosis or find any other cause for the condition. Oftentimes a diagnosis may be arrived at by exclusion, or an obscure lesion may be brought to light by a mere mental rehearsal of all the possible conditions, including the rare and infrequent.

In the management of these cases there are certain precautions to be taken. Never, under any circumstances, should purgation be given these patients. Many fatalities in acute appendicitis are due to administration of cathartics in a mistaken effort to relieve the symptoms. Furthermore, no morphia or similar anodynes should be given until the diagnosis is clearly established and arrangements made for immediate surgery.

Many times surgeons are called in consultation on these cases with all symptoms and signs marked and are obliged to make the diagnosis on the history alone. Only last week I was called to see a patient, a girl, aged nineteen, with an acute attack of abdominal pain of ten or twelve hours duration, to whom the family physician had given mild opiates, and on bimanual examination the right ovary, apparently, was found to be tender and enlarged to three times its normal size. The leukocyte count was 4,400, the temperature 98, and pulse 72. In view of the pelvic findings and low leukocyte count I would have hesitated to advise surgery had it not been for the previous history of definite attacks of classical acute appendicitis. Exploration through a low mid-line incision revealed the right ovary to be enormously swollen and injected, with the appearance of being on the verge of an ovulation. Catamenia was established twenty-four hours after operation. The appendix was markedly swollen and hyperemic, especially in the distal portion. The pathological report was acute appendicitis with sanguinopurulent material in the lumen. This case at least impressed me with Ochsner's dictum in regard to acute appendicitis. The surgeon should always have a leukocyte count made, remove the appendix, and then look at the report. Deaver himself does not stress the leukocyte count, but is more interested in the differential picture. He is not concerned with the latter from the standpoint of diagnosis so much as for an index as to the patient's resistance and a determination of prognosis. This applies, of course, more particularly to patients with complications, and of the perforative type, with localized or diffuse peritonitis.

In conclusion I might quote from Doctor Urban Maes, of New Orleans, a note of admonition: "If in doubt, operate. I hold no brief for promiscuous surgery, but I firmly believe that less harm is done in the occasional doubtful case, in which every effort has failed, by an exploratory incision, of sufficient length, however, to permit a view of the abdominal contents—than is done every day by the temporizing measures and the 'wait and see' attitude of the inexperienced medical man and his brother, the faint-hearted and timorous surgeon."

Contemporary medical men and surgeons are perhaps not so bold, to say the least, as our esteemed compatriot and colleague, Ephriam McDowell, who, more than a hundred years ago, before the day of asepsis and anesthesia, performed his epochal operation at Danville, only a few miles from here. Had he been a native of France, it has been said, he would have been elected a member of the Royal Academy of Surgeons, received the Cross of the Legion of Honor and obtained from the government a magnificent reward. We, perhaps, are not worthy successors to this great surgeon, equipped as we are with our scientific aramentarium, and, unless we strive to emulate his ideals, we shall not leave our imprint on the pages of medical history.

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ORIGINAL ARTICLES

CYSTITIS.*

By C. C. Woods, M. D., Ashland.

Cystitis is often called the Diagnostic Scapegoat of Medicine, because it hides such a multitude of sins as well as the true diagnosis. As a rule, the bladder is well behaved, it is sensitive and somewhat easily hurt and, like a child, it readily develops bad habits difficult to break. It is usually the victim and not the offender, and if we relieve the evil influences, the bladder will most often return to normal. It would be wise to educate the laity to the fact that frequency, burning and pain are not just a "cold settled in the bladder." This false belief often allows their true condition to continue until the primary causes are hard to control.

Cystitis was first described by Rayer, a French physician, in 1837. Huttenbrenner, in 1876, called attention to the frequency with which the disease occurred in infants and young children, and in 1881 Roberts described an extremely interesting condition in urine in which real, live bacteria were found. From that time on to the present, as science brought forth new and more complicated instruments and laboratory tests for the examination of urine and the urinary apparatus, the present knowledge of Cystitis has gradually evolved.

The essential cause of Cystitis is bacterial contamination. but such bacterial invasion, to produce Cystitis, must be in the presence of a contributing factor which renders the organ readily susceptible to microbial infection. Hugh Cabot considers this incidence of a favorable soil as the most important factor. He does not believe that the mere introduction of pathogenic bacteria is all that is essential. The cystoscope has proven primary Cystitis so rare that it is almost non-existent. Careful study by Smith of eighty-seven females, in whom the diagnosis of Cystitis had been made, failed to disclose a single instance in which the affection was primary. As a secondary manifestation, it was associated with renal infection (not tuberculous) in sixty-one per cent (61%); with renal tuberculosis in nineteen per cent (19%); difficulty in micturition, seven per cent (7%); systemic and pelvic infection, seven per cent (7%), and other lesions in six per cent (6%).

There have been cases in which tubercle bacilli have traversed the bladder on their way from the kidney for years without causing a Cystitis. Lawrence Brown found tubercle bacilli in ten per cent of one hundred and four (104) cases in which there were no evidences of urogenital tuberculosis. It is well known that the gonococcus only involves the trigone of the bladder by contiguity from the posterior urethra. Williams, Murray and Wallace found colon bacilli after operation in twenty-four of twenty-six cases, none of which had Cystitis.

There are many avenues of infection, however, which may be classified as active and predisposing avenues. The active avenues may come through ascension from the urethra; descension from the kidneys and ureters; hematogenous; lymphogenous; retention of alkaline urine with irritations from encrustations; unsterile instrumentation, with trauma; and attempts at self abortion, with foreign bodies finding their way into the bladder.

The predisposing avenues are: (1) Focal infection such as teeth, tonsils, sinuses, chronic ear diseases, appendix, gall bladder, constipation, hemorrhoids, fissures, seminal vesicles and prostate in the male and cervix and tubes in the female. (2) Diseases lowering the resistance of the kidney such as nephritis, arterio-sclerosis and stone in the kidney. (3) Conditions causing urinary stasis, as stone or stricture in ureter, enlarged prostate, carcinoma and pregnancy. (4) Conditions decreasing general resistance, as over exertion and exposure to cold, wet weather.

The micro-organisms responsible for Cystitis vary according to the acidity or alkalinity of the urine. In the acid urine we find the colon, tubercle and typhoid bacilli, the pneumococcus and gonococcus. In alkaline, urine, the proteus vulgaris, staphylococcus pyogenes aureus and albus and streptococcus. The colon bacillus is considered as the causative agent in the great majority of cases of cystitis, and then the streptococcus, staphylococcus, gonococcus and tubercle bacillus in frequency as order named. Typhoid bacilli are found in the urine of one-third to one-half the cases of typhoid fever.

There is one other common and extremely interesting type of Cystitis which receives a great deal of undeserved abuse. This is the type known as catheter cystitis. This condition can always be found where there is retention of urine and over-distention of the bladder. In over-distention the bladder wall is edematous and soggy, with an abundantly increased blood supply. This state of affairs, with the residual urine so common in obstructions of the neck of the bladder following operations in the pelvis and about the perineum, after labor and in such diseases as syphilis and myelitis, form an ideal combination for bacterial growth.

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*Read before the Boyd County Medical Society, June 5, 1928.

It is my impression that if patients were placed in a Fowler position as soon as possible after an operation, catherization by competent hands carefully performed within ten hours and repeated catherization continued as often as necessary, depending upon the fluid intake, the personal characteristics and the assumption that the normal urine output is only about one and one-half ounces per hour, there would be very few cases of post-operative cystitis. The only place in which over-distention is considered harmless, I believe, is in a paralytic condition of the bladder. Spontaneous rupture is extremely rare in this condition, and thus it is unnecessary to bother with catherization.

The symptoms of Cystitis are represented by a frequent and urgent desire to urinate, accompanied by sharp pain and tenesmus or terminal pain and the passage of turbid, purulent and sometimes bloody urine. These symptoms manifest themselves in varying degrees of intensity, depending upon the chronicity of the condition. To go more into detail, the pain *before* voiding usually indicates a distention of inflamed tissues or a pressure from tumors; pain *during* voiding may be due to inflammatory mucosa stricture, or local infection of the urethral canal; pain *after* voiding would suggest a spasm of the bladder wall. Frequency of urination depends on fluid intake, habit, irritation, nervous disturbance and excitement. I do not consider frequency important, however, unless associated with pain. It is well to remember that the bladder capacity varies in different individuals.

Blood and pus in a catherterized specimen may be from the urethra, bladder, ureter or kidney, and should suggest the possibility of the presence of growths or stones.

In childhood, pyelitis may have an acute onset with fever and no other symptoms. Often a gastro-intestinal upset accompanies the fever, and routine urine examination is of marked advantage.

In pregnancy, the patient may have extreme pain over kidney, ureter or bladder, with no elevation of temperature, and pus may not appear in the urine for twenty-four to thirty hours after onset.

In the diagnosis of cystitis a careful history and thorough examination are as essential as elsewhere. A severe cystitis may develop from instrumentation, bad corn liquor, turpentine and cantharides, or an enlarged prostate in a male patient, and marked pelvic trouble in a female may cause an immense amount of trouble in the bladder. Brides often have an infection of the bladder and urethra following trauma, in which case it would not be wise to make a too hasty diagnosis of gonorrhea.

In determining the type of infection present, a simple rule would be: In cases in which there is no recognizable cause of primary focus, the colon bacillus, streptococcus and the gonococcus are the commonest organisms found. Another rule: When there is no improvement under the usual treatment, suspect tuberculosis. H. Cabot points out that if fresh urine shows cocci in abundance with a small amount of albumin, few red blood cells, many leukocytes or a little pus and the renal function near normal, it is probably a coccus infection. If there are many bacilli, little albumin, much pus and decreased renal function, it is probably a colon bacillus infection.

In abscesses of the kidney, pus may be intermittent in the urine, but in tuberculosis and calculi, pus is usually continuous.

In the differentiation of pyelitis from acute appendicitis, the presence of chill, tenderness over the kidneys, tenderness and rigidity not corresponding with fever and rapid pulse are the diagnostic features. Often it is extremely difficult to differentiate, however, and I believe it is better to operate for pyelitis than to miss an acute appendicitis.

Perhaps the man who has done more real research work on cystitis than any other man in the United States is Helmholz, of the Mayo Clinic. At least ten different articles have been presented by him in the past five years. He makes the statement that "the value of different modes of treatment in cases of acute cystitis has always been very difficult to determine: First, because of the difficulty in knowing whether the infection is of the kidney, the pelvis, or the bladder; second, because pyelitis is a self limited disease of a great range of severity; and third, because anatomic anomalies seriously interfere with the cure of infection. It would, therefore, be almost impossible to judge the relative merits of different drugs by treating a series of cases with each drug. Even the more chronic infections may clear up spontaneously, regardless of treatment."

It is wise during the acute stage, however, to have the patient at rest even if an opiate is necessary. Fluids to the extent of two or three quarts daily, proper diet, thorough elimination and the removal of all foci of infection are the first considerations. If catheterization is essential, extreme care should be exercised, particularly the exclusion of trauma to the urethra or bladder. Discontinuing the use of the retention catheter after perineal repairs and vaginal operations is the first step in this direction.

It has been proven that a definite inhibition of bacterial growth in the bladder is observed when a sudden change in the urine from an alkaline to an acid media occurs. Alkalinization, however, is only of benefit for the diuretic effect obtained. Bacteria have even been known to flourish in an alkaline urine. In my own cases, potassium citrate and alkaline waters have proven the most satisfactory in obtaining a rapid alkaline reaction, in spite of the fact that tribasic citro-carbonate has been so highly recommended.

In children with a pyelitis, when there is vomiting present and very small intake of fluids, potassium citrate has acted best. When much fluids are possible, nothing does as well as urotropin in adult doses, using hexylresorcinol only when others fail.

Two drugs known as hexylresorcinol or capricol, developed in Johns Hopkins University and manufactured by Sharp and Dohme, and pyridium, manufactured by Merck, have held the center of the stage for a number of months. A short resume of capricol might not be amiss. It's selling points lie in the fact that it is a stable chemical compound; is non-toxic in therapeutic doses; is non-irritating to the urinary tract; is bactericidal in high dilution, in urine of any reaction; and is eliminated in sufficient concentration for bactericidal effect. It is administered in olive oil in twenty-five per cent strength in capsules and in liquid, in the dosage of one to four capsules after each meal. It is wise to decrease the fluid intake and to prohibit the use of sodium bicarbonate during its ingestion. The chief objections to hexylresorcinol, in my mind, are its prohibitive price and the required time of sixty to ninety days to effect a cure. If urotropin in large doses, accompanied by calcium chloride to render the urine more acid, completes a cure in much less time and with much less expense, why use hexylresorcinol?

It has been impossible to obtain detailed information concerning Merck's preparation "Pyridium," so it must suffice to say that it is even more expensive than capricol, and seems to have a bactericidal effect. In ten cases which I have been able to observe under its administration, I have noticed improvement in about fifty per cent.

In all of the severer cases of cystitis I have accompanied the oral medication with bladder irrigations, using a 1-8,000 solution of potassium permanganate in colon bacillus infections, a weak iodine solution in gonorrheal cystitis, and a 2% boric acid or .5% to 1% silver nitrate solutions, followed by instillation of a 10% to 15% argyrol in other cases.

Contrary pyelitis of pregnancy anomalies, calculi, ureteral strictures and similar conditions, I have referred as soon as possible to the urologist for pelvic lavage, or whatever he deemed necessary.

TWO CASES OF ACUTE MASTOIDITIS ASSOCIATED WITH FACIAL PARALYSIS AND SINUS THROMBOSIS.*

By A. L. BASS, M. D., Louisville.

Case I. Patient, E. R., female, aged 24, occupation, laundress. Family history: father living at 57, has marked constipation. Mother died at 47 from tuberculosis. Two sisters and four brothers living and well. One brother born dead, cause unknown. Personal history: patient had measles at age of ten; no complications. Appendicitis three years ago; pain in stomach radiating to right iliac region, right leg flexed, lasting three or four days. Treated with electrotherapy.

Present illness: October 31st, 1927. Began having pain in right ear five days ago which has been continuous. Yesterday she noticed that right side of face was paralyzed.

Examination: Right drum bulging; congestion along superior posterior canal wall. Marked tenderness on pressure over antrum and tip. There was slight edema behind right auricle. Temperature 99.8°F., pulse 105, respirations 24. Blood count: Leucocytes 9,800; differential, polymorphonuclears 84, lymphocytes 16. Wassermann reaction negative. Urinalysis: Reaction acid, specific gravity, q. n. s., albumin and sugar negative. Microscopic: few pus cells, many epithelial cells.

X-ray report: "Right mastoid cells show marked cloudiness and evidence of destruction of the septa. Left mastoid shows anterior cells normal; posterior show evidence of absorption of septa." With the evidence at hand, my judgment was to open the mastoid. Had not the facial paralysis been present, I would have been content to incise the drum and await developments.

Operation: A free incision of drum was made first, then mastoid cavity opened. The condition present was about what one would expect from an active mastoid of six days duration; that is, the cells were not broken down, there was an acute inflammation of mucous membrane lining cells and there was live pus in antrum. The mastoid cells were exenterated and antrum was curetted large as possible so as to relieve pressure upon seventh nerve caused by congestion and edema. The cavity was lightly packed with 5% iodoform gauze, incision was closed with interrupted silkworm gut suture, save lower one-third, which was left open for drainage. A gauze wick was left in auditory canal.

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*Read before the Jefferson County Medical Society. One patient (female, aged 24) exhibited.

The patient left hospital on ninth day and reported at intervals for dressing. During her stay in hospital, temperature ranged from 98° to 99.8°F., pulse 75 to 105; respirations 18 to 24. Wound healed by the 12th of December, about six weeks after operation. On December 3rd she was referred to Dr. Moren for electrical treatments of the facial nerve. January 21, 1928, nearly three months after operation, patient reported at office and "facial" was still complete. April 28, 1928, six months after operation, she reported at office and you find she can close her eye, draw corner of mouth upward and while her paralysis has not completed recovered, the results are gratifying.

Case II. B. I., female, aged 41, married, housewife, admitted to city hospital October 29th, 1927. Family history: Father, mother, two sisters and one brother living and well. Five children living; two dead; one died in infancy, one from spinal injury. Personal history: patient had pneumonia ten years ago, and again several years later. Has had trouble with right ear since fourteen years of age, with pain and discharge.

Present illness: Discharge from right ear with pain and tenderness in right side of head and neck for four weeks. Says she has had chill every day for five days prior to coming to hospital.

Examination: Patient well nourished, weight about 150 pounds. General examination negative, save for marked pyorrhea alveolaris and ear condition. Examination of ears: left negative, right shows general edema of canal more marked along posterior wall next to drum. Drum bulging with small perforation posterior to center, moderate amount of discharge present. There was slight tenderness over antrum and emissary vein on pressure. There was redness, swelling, tenderness and marked infiltration along anterior border of sterno-cleido mastoid muscle, right side. Her temperature on admission at noon, October 29, 1927, was 100°F. That evening at five o'clock it was 106.2°. The next morning at eight o'clock it was 98°F., that evening (8:00 p. m.) went to 104°F. I told the interne that it was a typical case of lateral sinus infection complicating acute mastoiditis; that a blood culture should be taken, whether it was positive or negative, the patient should have the internal jugular ligated; mastoidectomy, lateral sinus exposed and opened; that I wanted Dr. Dabney to see her. Within about thirty minutes Dr. Dabney had seen and examined her and pronounced the same judgment, save that he advised opening the mastoid and waiting twenty-four hours. The next afternoon about four o'clock the right mastoid region was explored and found to have cell destruction, granulations and free pus, characteristic of acute mastoid infection with the history, subjective symptoms and objective findings. The sinus was exposed and left to be explored after ligating the internal jugular. The vein was found collapsed on account of the clot completely obstructing the sinus. The vein was tied above and below the facial; along with the facial, and excised. The wound was closed and a small piece of rubber tissue was left in lower edge to be removed at first dressing. The sinus was then opened and found completely occluded with clot in the center of which was free pus. The sinus was curetted clean toward bulb, then posterior toward torcular until free flow of blood was encountered; the cavity was firmly packed with 5% iodoform gauze, the wound left fairly well open and bandage applied.

Her temperature rose to 101.5°F. that evening at eight o'clock. Next day, November 1st, ranged from 100° to 102°F. November 2nd, 100° to 102.4°F. November 3rd, 98.6° to 102.4°F. November 4th 99.4° to 102°F. November 5th, 99.2° to 103°F. November 6th, six days after operation, temperature declined to normal and remained there. The patient was dismissed from hospital sixteen days after operation.

The blood culture report next day after operation showed streptococcus hemolyticus. Smear from ear prior to operation showed streptococcus. Blood culture taken ten days after operation was negative. Two Wassermanns negative. Spinal fluid taken October 29th, the day before I saw her, negative; no increase in globulin or cells. The internes had a Widal test made which was also negative. There was a small abscess on dorsum of first phalanges of middle finger which proved to be due to staphylococcus aureus.

Blood count, October 30th, 1927: Leucocytes 12,900, differential; polymorphonuclears 86, lymphocytes 14. Urinalysis, October 29th: Urine cloudy, reaction acid, specific gravity, q. n. s., albumin three-plus. Catheterized specimen: color cloudy, reaction acid, specific gravity, q. n. s., albumin four-plus. Microscopic: many leucocytes and pus cells, few erythrocytes and epithelial cells.

The wound had completely healed on the 19th of December, about seven weeks after operation.

DISCUSSIONS.

Samuel G. Dabney: I first want to thank Dr. Bass for the privilege of having seen one of the patients he has described, and also wish to congratulate him on the excellent results obtained.

In regard to the first case reported: The facial paralysis was more persistent than such cases usually are. It is not uncommon to have facial paralysis associated with middle ear disease, and they are not always suppurative by any means. I recall one woman of thirty who had marked facial paralysis accompanying acute catarrhal disease of the middle ear. She made a satisfactory recovery within six or eight weeks. Facial paralysis complicating suppurative middle ear disease is more common. The first case of this kind I ever saw was in a young man who later became a distinguished poet. He recovered within two months, as the most of these cases do. This does not refer to cases of post-operative facial paralysis. In the case reported by Dr. Bass facial paralysis existed before the operation. Mastoidectomy, however, would have been justifiable in that case even in the absence of facial paralysis. It is true that he operated earlier than we usually do in such cases. The roentgenogram showed destruction of the septa between the mastoid cells which is very important. Cloudiness of the mastoid means very little, but destruction of the cell walls means a great deal. In addition there was edema behind the ear, pain extending over a period of five days, tenderness over the mastoid, and slight fever. These were all indications for opening the mastoid. I think the majority of general practitioners who first see these patients are under the impression that mastoiditis is invariably attended by high fever. Experience has demonstrated that usually mastoiditis is not attended with high fever in adults. The case reported is interesting chiefly because of the obstinancy of the facial paralysis. There must have occurred severe pressure on the facial nerve from the presence of inflammation. The operation performed by Dr. Bass was indicated and I believe the patient will ultimately make a complete recovery.

Cases of sinus thrombosis are always interesting. At the time I saw the patient in this case, the blood culture report had not been received and I understand nothing was heard from it until the day after the operation. I am sure Dr. Bass was wise not to wait for result of the blood culture. Of course blood culture is of tremendous importance if the streptococcus hemolyticus is found in the blood stream, but failure to find this organism in the blood stream means very little. It is generally regarded that the streptococcus hemolyticus is the most virulent of this group of organisms, except the streptococcus mucosus capsulatus, which I have seen a few times in my life.

I think it is well enough to open the mastoid first and if pus is found and the sinus looks healthy, to wait twenty-four or forty-six hours and then proceed with the sinus operation. The tendency at present, however, seems to be toward earlier operation in these cases. A very interesting article appeared in the Laryngoscope for February of this year by Crane, who takes the position that we should open the sinus early before the clot has formed. I believe he is right in saying that the most important point in the operation is ligating the jugular vein,—more important perhaps than opening the sinus itself, as when the vein is ligated we limit the possibility of infection to a great extent.

I want to say that I also saw Dr. Bass' patient after recovery. There was only slight discharge from the ear, the mastoid did not show much evidence of the operation, the scar on the neck was smooth, and ultimate recovery was attended by no disfigurement of any kind. Dr. Bass is to be congratulated on his prompt action in this case and his excellent result.

A. L. Bass (in closing): The case of facial paralysis was especially interesting to me. As Dr. Dabney has said, most of these cases occurring with middle ear infection the paralysis disappears within four to six weeks. However, I notice that Kopetsky mentions some cases where the paralysis persisted for two years then disappeared to some extent. It is claimed by neurological surgeons that where the facial nerve has been out of commission, so to speak, for six months or a year, it becomes necessary to anastomose either the spinal accessory or the hypoglossal in order to reestablish function. I was in hopes Dr. Moren would be present at this meeting to report on his treatment and progress. As I stated, for about three months this woman had no return of function, and yet we see her tonight, six months after operation, with good function, which is very gratifying.

In the case of thrombosis of the lateral sinus the fact is interesting that there was a clot completely occluding the sinus, in the center of which was free pus. I do not believe this woman even had a doctor, she was ill in bed, and the first physician they called was probably the "ambulance." My four patients with sinus thrombosis prior to this one all presented a typical septic temperature. In all of them the blood culture was positive and the clinical symptoms were indicative, which made it imperative that the internal jugular be ligated and the lateral sinus opened. These cases did not have any occluding clot as they were operated early, which is the case in the majority of these conditions. In the case reported the symptoms had extended over a period of four weeks. Had the woman been operated upon earlier, probably less clot would have been found in sinus.

FEMORAL FRACTURE TREATED BY BONE-KEY METHOD.*

By George A. Hendon, M. D., F. A. C. S., Louisville.

The patient before you is Mr. McD., aged 26 years. On August 27th, 1927, he sustained a fracture of the femur at the junction of the lower and the middle third. I wish those of you who care to do so would examine this man before the lantern slides are shown.

It has been about six months since the injury occurred. The man was in bed three weeks, one week in a wheel chair, at the end of the fourth week he walked on crutches and left the hospital. He used crutches for a week and a half, making a total of five and a half weeks disability. He now walks perfectly well, and you see he can run up and down the steps of the ampitheater with ease. He was treated by the bone-key method which I have described before this society on previous occasions. No external means of fixation were used. A ham splint was applied while he was being transported from the operating table to his room in the hospital, and the splint was then removed. The bone-key maintained the fragments of bone in perfect apposition until union occurred as will be noted when the lantern slides are shown on the screen.

I am presenting this case, not particularly to illustrate the result obtained, because the outcome is usually satisfactory in this class of fractures, but I want to emphasize the importance of the method employed. I have treated fourteen fractures of the femur by this plan and the result was satisfactory in all of them. This gentleman was kind enough to come here for exhibition.

There was no swelling of the tissues during convalescence and the patient states that "his broken leg now seems stronger than the other one." I believe the bone-key method is worthy of consideration, on account of its ease of application and the comfort the patients derive therefrom. There is little or no restriction of movement, and no painful external appliances are used. The patient is able to move himself in bed at will and suffers very little restraint.

About the time this man came under my observation I had in the city hospital another patient with a gunshot fracture in about the same location. I did not see him until six weeks after the fracture was sustained. The bone-key procedure was employed in this case also with satisfactory result. Both patients were operated upon the same day.

One of the points I wish to make in connection with application of the bone-key which I think is important is that no catgut is used in closing the external wound. The soft parts are brought together by means of silkworm gut or silver wire and all hemorrhage thus controlled. I have performed this operation between fifty and sixty times and have never yet ligated a vessel. I look upon the operation as a "lock-and-key" proposition. The fragments of bone are locked with the bone-key. The bone-key is always introduced at right angles to the long axis of the fracture. In transverse fracture the key is introduced into the medullary canal, but in oblique fracture the key is driven directly through the bone. It is important, when using the bone-key in the medullary canal, to place a greater length of the key in one fragment than in the other. By using this precaution there will be no likelihood of the bone-key breaking. As an illustration: take a lead pencil and grasp it with the hands, an equal portion in each, and the pencil is easily broken, whereas if a greater part is in one hand and a shorter section in the other, it will be found almost impossible to break it. Infection supervened in one case. That was a fracture of the upper portion of the femur in a child. However, this did not interfere with healing of the bone. That is the only case I have had where infection occurred.

I have been employing the method described for about seven years. The best cases in which it was used were fractures of the hip in elderly individuals. It was found entirely satisfactory in such cases, the patients were relieved of the weight of external fixation devices, plaster of paris, etc., and could be moved in bed without any discomfort. As soon as the soft parts are healed firmly the patients are permitted to leave the bed. The patients are able to walk on crutches in three and a half to four weeks.

I am glad to have had the privilege of exhibiting the patient you have seen and am grateful to him for coming before us. I think the method used is worthy of consideration as it can be applied to nearly every bone in the body. After long experience and with an unbroken line of success, the method is firmly established so far as I am concerned.

DISCUSSIONS

Elmer L. Henderson: I have employed the bone-peg method in treating a number of fractures with very satisfactory results. In the type of fracture shown by Dr. Hendon tonight it has been my custom for several years to invariably employ the medullary bone splint or the bone-peg procedure. I have never had the nerve to use this method, however, in hip fractures in aged individuals, nor in pathological fractures in any situation. I would like to ask Dr. Hendon whether there is not sometimes a considerable amount of shock following his operation on elderly persons?

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*Case report with exhibition of patient and lantern slides before the Jefferson County Medical Society, February 20, 1928.

George A. Hendon (in closing): Dr. Allen raises the question of priority. I wish it understood that I do not make any claim for priority in the use of bone or any other foreign substance for the fixation of the fragments in fractured bones. A claim of priority on this point will lead us back to the Egyptian era and perhaps to prehistoric ages. However, I can find no record anywhere of the exact method I have employed in treating fractures. I am quite sure the plan of using the bone-key as described is a new feature in surgery. The only claim for priority that I make is, I have found satisfactory results can be obtained by the bone-key method without employing external fixation apparatus.

Concerning the question raised by Dr. Henderson: I have operated upon fourteen old people for senile intracapsular fracture with less shock than would occur from the application of an ordinary plaster of Paris dressing. The bone-key procedure requires only a few minutes and there is no shock. Nitrous oxide gas and oxygen are preferred as the anesthetic in these cases. The patient does not have to remain in bed eight or ten weeks as under the older method, the circulation and nutrition of the limb are not interfered with, and that is the reason why suppuration rarely occurs following these injuries when treated by the method I have described. Moreover, the patient is not helpless, he can move himself in bed without discomfort, and pain is a negligible factor. The matter of shock may be disregarded, because it is much less by this method than any other that I have seen used.

Endameba Histolytica in Seminal Fluid in a Case of Amebic Dystentery. In the case reported by Laurence E. Hines, Chicago (Journal A. M. A., July 28, 1923), Endameba histolytica was found, during life, in the seminal fluid of a man suffering with chronic amebic dysentery. As the seminal vesicles were enlarged and tender, and no demonstrable changes were present in the prostate glands or testes, this case is regarded as one of amebic dysentery with amebic metastasis to the seminal vesicles.

CAESAREAN SECTION UNDER LOCAL ANESTHESIA.*

By Walter Hume, M. D., F. A. C. S.,
Louisville.

Mrs. F. C., aged 27, entered St. Anthony's Hospital October 17, 1927, approximately at term.

Family History: Unimportant.

Personal History: Outstanding features are an acute attack of rheumatism in a previously well girl at the age of 8 and at age of 15 a "heart attack," tachycardia, shortness of breath, etc., which led to a diagnosis of organic heart disease and to the usual restrictions for such cases. Since this first attack and in spite of care and almost constant treatment occasional attacks of fibrillation have caused great distress and periods of treatment in bed. For about five years she has been under the observation of Dr. E. F. Horine who classed her as a "rheumatic heart" case and the specific lesion as aortic insufficiency. Her tonsils had given her trouble from childhood and were removed by Dr. C. T. Wolf in 1923 following which her general health improved but the cardiac condition was unchanged. Between the occasional stormy attacks her general health was fair and she did light work.

She was warned that pregnancy and childbirth would entail grave risks. She married and became pregnant. The heart condition was aggravated from the outset and most of the period of gestation was spent in bed. No toxaemia or other obstetric difficulty arose but digitalis and allied remedies were required throughout. Therapeutic abortion was refused consideration by the patient.

On admission patient was weak and emaciated. Hb. 60%. Heart fibrillating, pulse bounding, very irregular and radical rate about 100 per minute. Urine negative except for a trace of sugar. Pelvic measurements normal, baby's heart sounds 140 and of maximal intensity slightly to left and below umbilicus. After several consultations previous to admission it had been agreed that Caeserian section under local anesthesia probably offered the safest means of delivery. Consequently when on October 24th, labor began, 1-4 gr. of morphine was given and under abdominal fieldblock with 3-4 of 1% novocaine conservative abdominal Caesarean was performed, a 6 3-4 lb. boy being delivered without difficulty. The mother was returned to bed in the same general condition, according to the observation of Dr. W. H. Long, as before operation. In fact, the heart condition remained about the same throughout her stay in the hospital improving little after delivery. On the 14th, post-operative day the left foot and leg showed slight swelling though pain was not complained of and there was no rise in temperature. The case was practically afebrile only a slight rise immediately following operation being recorded. Swelling in the foot soon subsided and on the 24th. post operative day the patient was out of bed. Discharged from hospital four days later. Patient was examined at my office March 17, 1928 and is doing nicely except for the heart condition. The baby did well.

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*Read before the Jefferson County Medical Society.

Remarks: The primary purpose in reporting this case is to emphasize the availability and practicability of local anesthesia in this and similar situations. This patient was not hurt and behaved splendidly on the operating table. General anesthesia had been refused her though, of course, she might have withstood it perfectly well.

Of the methods of local anesthesia for this operation fieldblock affords relaxation of the recti and control of pain sense to the peritoneum of the anterior abdominal wall while linear infiltration does not, the latter method thus handicapping the operator greatly. Spinal anesthesia causes a drop of blood pressure much to be feared in heart cases. It may be well to remark that though the uterine mucosa is slightly sensitive (Braun) no anesthesia is required for operations on the fundus uteri if traction be dispensed with. Caudal, sacral and para-sacral methods are not available for abdominal Caesaren operations.

The indication for Caesarean in this case is somewhat unusual no doubt. Reasons too theoretical and excuses for performance of this operation are to be unsparingly condemned. My point of view is that of the general surgeon and chief reliance as to indications is regularly placed in the consulting obstetrician. In this case the cardiologist's contention in favor of Caesarean under local anesthesia as prdouctive of less heart strain than normal primiparus labor was, in my personal judgment of results, correct and fully justified.

THE REPAIR OF OSSEOUS TISSUE FROM A MACROSCOPIC STANDPOINT.*

By Isaac A. Arnold, M. D., Louisville.

The following observations are based upon several hundred cases of fractures and other bone injuries. During these observations I have been able to determine fairly definitely which tissue has osteogenetic properties and which has not. In many cases I have had the opportunity of noting the progress of osseous repair in all stages, from the inception of the injury until the expiration of two, three and even four years. The observations extended over a period of about sixteen years and include both civil and military practice.

In the treatment of all osseous lesions, it is necessary that one have a reasonable amount of knowledge concerning the mechanism of repair of bone tissue to enable him to more successfully deal with such injuries.

We will first consider the osteogenetic properties of tissues that form bone or support osseous cells, namely, the periosteum, endosteum and compact bone. Authorities have come to rather definite conclusions as to the osteogenetic properties of the endosteum which I have been able to confirm in my work, but there is still some question in my mind regarding the osteogenetic properties of the periosteum. The conclusions drawn from my own observations are: that the periosteum acts as a sheath, or protector, and supports osteogenesis in conjunction with the endosteum and outer layer of the cortex of the bone, but periosteum completely detached from these elements has no osteogenetic property. When the periosteum is detached, or not connected with any osseous tissue, it folds like a scroll and forms a band of fibrous tissue, yet when detached with a piece of cortical bone it shows evidence of regeneration, as has been thoroughly demonstrated in cortical grafts.

I have seen two fragments of bone completely detached from the original site with absolutely no connection between them other than a bridge of periosteum. and yet these fragments united, which shows conclusively that the cortical bone, either with the endosteum or without it, in conjunction with the periosteum, does have osteogenetic properties. The reverse is true of bone detached without periosteum and endosteum, it becomes encapsulated with fibrous tissue, but there is no attempt at osseous repair. Bone detached in the same position with the endosteum will always unite.

I have also observed that where there is wide separation of fragments in fractures and the periosteum collapses or the inner surface becomes interposed between the ends of the bone, there will be fibrous or non-union, as the bone cells will not penetrate through this fibrous union any more than nerve cells will penetrate through a scar in the sheath of a nerve. On the other hand, if the periosteum is detached and drawn into the muscle for quite a distance, the hemorrhage from the bone following its detachment becomes organized and osteogenesis begins at the osteo-periosteal angle. The periosteum throws out fibrous cells forming a network through which the osteoblastic cells pass and are deposited in this network of fibrous tissue producing the appearance of a limb growing outward from the trunk of a tree.

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*Read before the Jefferson County Medical Society. Illustrated with lantern slides.

That the endosteum and cortex of the bone have osteogenetic properties is unquestioned; they are the mothers of the osteoblasts thrown out through the organized clot of leucocytes and erythrocytes which are later dissolved by the fibroclasts, the latter being nothing more than giant osteoblastic cells; but this ossification will not extend beyond the sheath of the periosteum in its growth. In other words, the periosteum forms just a little in advance of the osseous tissue until a complete bridge is made across the area of separation. I have noticed this particularly in the regeneration of a groove that had been made in one of the long bones following osteomyelitis. There is always a projection of the periosteum slightly beyond the compact bone formation, and if the endosteum does not fill the space promptly from the bottom the periosteum finally extends downward into this groove and meets that from the opposite side, forming a shallow groove in the bone which later is filled from beneath pushing the periosteum upward making complete the normal circumference and contour of the bone.

The clot that forms at the site of fracture between the ends of the bone, under the periosteum, sometimes extending outward into the tissue, serves a two-fold purpose. First, the hemorrhage or clot which is soon organized prevents collapse or "dipping in" of the periosteum thereby avoiding adhesion of the inner surfaces of the periosteum which would cause a fibrous band between the fragments, as sometimes happens if the periosteum is extensively lacerated and the hemorrhage is extra-periosteal, producing pressure on the outside thereby forcing a section of the periosteum between the fragments. This will invariably produce fibrous union. The second function of the clot when it becomes organized is that the periosteal or fibrous tissue cells can go through this mass forming a network or frame which the osteoblasts thrown off from the endosteum and cortical structure will follow in rows or channels, through this mass, meeting the corresponding growth from the other end of the bone, and soon this intermingling of osseous and fibrous tissue produces the substance which is called callus. The fibrous tissue and blood cells are gradually carried away or digested, whatever the process may be, by the osteoclasts and the osteoblasts take their place and finally become solid bone tissue.

I do not wish to bore you with intricate details concerning osseous regeneration. What I have said is only to assist in the understanding of the formation of bone that takes place at the site of injury so we may be able to appreciate the causes of failure of union in such injuries.

First, let us make it clear that osteoblasts are not thrown off from the periosteum but from the endosteum and cortex of the bone, that the periosteum is the protector and supporter of osteogenesis in the same sense as oxygen is the supporter of combustion but will not produce combustion itself.

We have all heard, and in the older days were taught, that exuberant callus formation is advantageous. I may say that in faulty apposition it is, for it is nature's effort to smooth over defects in continuity that should have been corrected mechanically. In other words, exuberant callus either means an extraordinary amount of destruction of osseous tissue and tearing of the periosteum, or imperfect apposition at the time of reduction, possibly both. I might add here that following fixation if the after-treatment is not properly handled it will contribute considerably to this mass formation of osseous tissue with unsatisfactory results.

Bearing in mind the factors just mentioned in osseous repair, let us proceed to the consideration of further details.

When a patient appears with suspected fracture or injury to the bone, we should first try to make an accurate diagnosis of the lesion with as little manipulation and insult to the tissues as possible. In case of doubt as to the character of the lesion, force should not be used to elicit crepitation or some other pathognomonic sign, but we should resort to roentgen-ray examination which will give a definite picture of the condition present. It must be remembered that the more the manipulation the more exudate is thrown out, oftentimes the periosteum—which was intact—is torn loose, thus allowing hemorrhage into the soft tissues, forming a crater through the periosteum at the fracture site. Later as osseous repair, of which we have spoken, takes place, an enormous amount of callus is formed in the tissues. This often interferes with innervation to the parts, exerts pressure on the blood vessels, and impedes joint function. In some severe injuries these conditions cannot be prevented, as they are caused at the time of the injury and not by manipulation.

Not many years ago we were told by good authorities that slight motion at the site of fracture was desirable as it promoted ossification. This is true in certain cases if motion is practiced at the proper time, but it is inadvisable as a routine measure in cases of apparent delayed union. We know that some bones regenerate much more rapidly than others, and, so far as we can see, without any apparent reason. To subject a bone slow in undergoing repair to even slight motion at the site of fracture separates the small deposits or reed-like rows of osteoblasts which are just beginning to solidify in the fibrous tissue, and because of this disturbance the fibrous tissue grows through the break in osteoblastic formation thereby producing a transverse chain or fibrous band. If one persists in this disturbance the band mentioned becomes solid fibrous tissue transversely to the rows of obsteoblasts, and finally becomes so solid that the osteoblasts will not penetrate it, any more than, as I have stated, nerve cells will penetrate fibrous tissue in the end of a nerve sheath. The result is fibrous union, whereas if this delicate tissue had not been disturbed in its formation eventually a complete bridge would have been built across the gap with the formation of solid bone and union.

If the condition has existed for an unreasonable length of time, and there is reason for believing that union will not occur, then vigorous friction at the site of fracture may possibly destroy this fibrous tissue or detach it from the osseous tissue thereby liberating the osteoblasts into what might be called a new union. This means starting over again with complete fixation, and under these circumstances one may expect occasionally, but not often, to obtain a good result. However, I do not advise such a plan of management. It is better to resort to open operation and place a bridge of bone tissue across the gap. In this way union will be more certain and much quicker.

In the open operation for aiding the repair of osseous tissue, we must be equally careful in our manipulations and insults to the different structures. As already stated in reference to the periosteum, we should be careful of this in the same ratio as we would of the pia mater of the brain, as the former to a certain degree stands in the same relation to the bone as the latter to the brain, namely, as a supporter and protector.

There may be considerable loss of osseous substance, and yet if the periosteum spanning the space is in such position that its inner surfaces do not coalesce, we may expect regeneration of the bone. If there is a tendency to scroll formation of the periosteum, it is well to distribute small pieces of bone along the groove. This acts as a prop in holding the two surfaces apart. If the site is kept absolutely immobile one may take pictures at intervals of six weeks and watch the regeneration in the line of bone formation, and once union begins longtitudinally the law of nature always takes care of the size and contour of the bone with reference to the function it has to perform.

Some authorities claim that rarely is the medullary canal re-established. My observation has been, in a number of cases with considerable loss of substance, that either a transplant, sliding graft or intermedullary graft will not interfere with the re-formation of a patent canal. However, it usually requires from eighteen months to three years for re-establishment to become complete. Although there may be a small canal from the beginning, which may not show in the roentgenogram, if one has occasion later to divide the bone transversely a small crack or channel will be seen formed through the tissue. If, as has been mentioned before, the periosteal surfaces coalesce and form fibrous tissue between the ends of the bone, these fragments and the medullary canal are sealed hermetically. Even at this stage, however, if the fragments be exposed and the ivory-like bone tissue removed well into the canal, and a bone graft applied which contains the full substance of the bone, that is periosteum, compact bone and endosteum, the canal will regenerate as union takes place.

In all of these operations care must be exercised to destroy as few of the normal bone cells as possible, either by the saw becoming too hot and thereby killing the normal bone cells, or washing the cells away with water in order to keep the saw cool. We should not use sponges too liberally as this removes normal bone cells which enter into the formation of new osseous tissue.

The periosteum must be applied over the injury snugly, and if it is impossible to do this the periosteum should be trimmed thus making smooth borders so as to prevent extension into the muscle with the production of too much callus which interferes with motion, or the reverse, i. e., interposition between the fragments of bone with the formation of fibrous tissue which is not desired.

DISCUSSIONS.

George A. Hendon: Dr. Arnold has given us a very complete and graphic picture of the processes employed by nature in the reconstruction of bone, and after the careful manner in which he has elucidated these processes there can be no doubt in our minds as to what the various steps are.

When we come to a more practical view of the subject, however, there are a few things that occur to my mind as being essential for the purpose of assisting nature to successfully handle these various definite and necessary regenerative processes. The first one I would stress as being of the greatest importance is nutrition, which must be ample and regularly supplied. The second factor is alignment. I think it is important to place the bones in proper alignment, because when this is done the ends of the fragments will find their counterparts though widely separated. The third item of importance is immobilization. We have often heard it said that a certain amount of motion is advantageous in fractures. I would go further than this and say a certain amount of motion is absolutely inevitable. The excursions, however, must be definitely limited. If there is an irregular and increasing range of motion there will be an enormous deposit of callus which will cause deformity, or union will be prevented, or fibrous union occur.

To return to the question of nutrition: We realize that all splints and other immobilizing apparatus interfere with nutrition not only of the soft parts but also of the bone itself. When splints and apparatus of various kinds are employed in the treatment of fracture one can never be certain whether sufficient circulation has been preserved to support the vitality of the soft tissue and at the same time assist in repairing broken fragments and defend these injured tissues against invasion of pathogenic organisms. That is the reason why the slightest infection will have such disastrous results when it occurs in the presence of immobilizing apparatus.

It has been my object and effort to devise a means by which all immobilizing apparatus can be dispensed with, for the simple reason that by doing so the nutrition of the limb would be less impaired. This led to the adoption of what I am pleased to call the "bone-key method." By this plan all apparatus for external fixation may be discarded. The method is absolutely and positively practical as I have demonstrated in about sixty cases of fracture. The bone-key can be used successfully in every long bone in the body. In transverse fractures it is placed in the medullary canal, in oblique fractures it is driven through a hole bored in the fragments. In fracture of the tibia the key must always be introduced into the medullary canal because the tissues overlying the bone are so very thin.

The question as to infection after application of the bone-key has often been raised. I want to say that infection under these circumstances is of no more gravity than infection of the abdominal wound after celiotomy. It is surprising how seldom infection occurs after use of the bone-key. In my series of cases there have been noted only one where the tissues became infected. I have a good alibi for that case, but do not care to use it, and have charged it against the key. In all cases where the bone-key has been employed there has been no interference with circulation and nutrition of the limb.

Another important point to be considered is that the medullary canal has absolutely nothing to do with nutrition of the bone. The first thing that nature does when fracture occurs and when she begins to regenerate and reconstruct the bone is to close the medullary canal. In some instances she opens the medullary canal later, and sometimes she does not. It is my impression that the reason bone is hollow is to increase its strength and at the same time preserve its grace and form. We know that a tube of given length and weight is stronger than a rod of the same material of equal length and weight.

My object in doing the work which I have accomplished along this line has been to avoid imposing an additional burden on nature in the way of mechanical devices or foreign substances. My intention has been to fix the fragments in the best possible position by use of the "lock-and-key." By introduction of the bone-key the fragments can be successfully locked, there is no question or argument about it. I have done it so often that I know it is feasible. By this plan we can do in a week what nature with the ordinary external apparatus or external means of immobilization would require a month to do. Nutrition not having been interfered with there is absence of the swelling which persists for months after the dressings have been removed in the usual method of treatment. Restoration of function of the limb is not delayed.

I recently had occasion to present this method before one of the larger medical organizations of the country, and the consensus of opinion of those who took part in the discussion was that the plan would be absolutely impossible in gunshot fractures. I have employed the method not only in gunshot but in compound fractures with uniformly successful results. In the slides that will be shown presently will be noted two gunshot fractures of the humerus treated satisfactory by the bone-key.

I want to say that from time immemorial, from prehistoric times perhaps, surgeons have employed various kinds of external and internal fixation devices in the treatment of fractures. I make no claim for priority as to the material used, but so far as I am able to ascertain no one has heretofore used the bone-key in the manner that i have. The slides that are being shown on the screen illustrate the manner in which the bone-key is applied in various types of fractures.

The points which I desire to impress upon you are: In this method no splints are utilized, the idea is to "lock" the fragments by means of the bone-key. The key is not a graft. When the key is introduced into the medullary canal a greater portion of it should be placed in one fragment than the other. This precaution is necessary to prevent the key breaking.

I have rarely used a bone-key larger than 3-8 inch. In the humerus the medullary canal is larger than it is in the femur in the adult and requires a 5-8 key. It is quite difficult to procure keys of that size because they are made from the cortex of beef bone which is not that thick.

As to absorption of the bone-key: I have discussed that before. The key does not undergo absorption in my experience. I have one patient operated upon seven years ago and the key is still in evidence, it does not seem to have undergone any change whatever. I do not expect the key to grow, it is not a graft, and all it does is to lock the fragments until union occurs.

Orville R. Miller: I am sure we all appreciate Dr. Arnold's splendid resume of the regeneration or reconstruction of bone following fractures. He has left little for us to discuss.

How is it that union will take place where there is marked over-riding of the fragments in a transverse fracture, or when the fragments of an oblique fracture are transposed so that periosteum lies against periosteum, if there is no regeneration of bone from the periosteum? And how is it that periosteal grafts cause union of bone when transplanted? And how is it that fragments of bone denuded of periosteum, but lying in position, do not unite to the shaft, but are absorbed? All of us have had these experiences.

John D. Trawick: I have enjoyed Dr. Arnold's excellent exposition of the processes of bone regeneration. If it be true that the periosteum has no ostegenetic property, how can we account for bone substance which is often found directly attached to the periosteum itself? This is often noticed in our operations for osteomyelitis where the underlying bone is destroyed.

ATYPICAL OR SPORADIC HEMOPHILIA.*

By James W. Bruce, M. D., Louisville.

I was recently called to see a boy eight years old whose life had been normal, except it had been noticed that he bled very easily especially from the nose or after slight injury. He often developed nosebleed during the night from no apparent cause, also following a trivial blow on the nose, etc., and sometimes difficulty was experienced in controlling the bleeding. The child's father, who had been an athlete, was similarly afflicted. He frequently had nosebleed, sometimes the nose bled at night when there had been no trauma. He would often awaken during the night with nosebleed.

This boy had one of the febrile diseases, probably tonsilitis, the week before I was called. When I first saw him he had an enlarged cervical gland on the right side. This gland was left undisturbed, in the meantime the child had low-grade fever, and finally evidence of suppuration appeared and on September 27th Dr. L. W. Frank incised the gland and liberated about an ounce of pus. The night after the operation the child bled freely from the wound, in fact he bled all afternoon, and that night Dr. Frank was recalled to dress the wound. During that night the child also had a severe attack of nosebleed and Dr. J. H. Simpson was called to take care of this. Hemorrhage continued at intervals for three days, and the child lost a large amount of blood.

The patient became so weak from loss of blood that transfusion was performed on October 1st. Before the transfusion the blood count showed: erythrocytes 3,700,000, leucocytes 21,000 with 81 per cent polymorphonuclear cells. The coagulation time of the blood was six and a half minutes, bleeding time five and a half minutes. The blood platelet count before transfusion was 260,000, the day after transfusion 210,000. Prothambin time, according to Howell's method four minutes. The clot retraction was good. When the blood was placed in a test tube the erythrocytes sedimented and the serum separated. That was a peculiar phenomenon that I had never seen before. The blood calcium was 10 mm. to 100 cc. which I believe is normal.

The question of diagnosis naturally arose, especially the differentiation between purpura hemorrhagica and hemophilia. Against purpura hemorrhagica was the fact that the coagulation and bleeding time was practically normal. The clot retraction in purpura hemorrhagica is not present. In hemophilia there is usually found a prolonged coagulation time and also bleeding time. In this case both were practically normal. In hemophilia the clot does not retract, but in this case the clot retracted well. In hemophilia there is generally a family history of bleeding, with a tendency for this peculiarity to be transmitted through the female side, so in this case one might expect that the child's grandfather on his mother's side to be a hemophiliac, but there was no such history. On the other hand, some observers have described a condition they call sporadic hemophilia, where there is no family history but they simply find a marked tendency to hemorrhage with coagulation and bleeding time normal or slightly prolonged.

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*Read before the Louisville Medico-Chirurgical Society.

I was impressed with the fact that this child had the type known as sporadic hemophilia. It is not typical hemophilia but an atypical form designated by the name sporadic hemophilia.

DISCUSSIONS

Jesse H. Simpson: I saw the child described by Dr. Bruce during an attack of nosebleed at two o'clock in the morning. I removed the packing to determine if possible the source of the hemorrhage, but there was so much bleeding that no information could be obtained and the packing had to be immediately replaced. Twenty-four hours later the procedure was repeated, and again the packing had to be reapplied. I thought the blood came from the septum but could not be certain about this as it "welled-up" like a spring and seemed to come from the floor of the nose. Hemorrhage was so profuse that it was impossible to determine its exact source at that time. After the transfusion the packing was removed and there was no further bleeding. The septum was then carefully examined and no erosions found.

L. Wallace Frank: The operative procedure upon the child mentioned by Dr. Bruce was very simple. An incision about one-half inch long was made over the gland, a hemostat introduced into the abscess, the pus evacuated, a small strip of gauze inserted, and dressings applied. I was recalled the same afternoon to change the dressings on account of hemorrhage from the operative wound. That evening, or five and a half hours later, the dressings were again changed and the drain removed following which there was no further bleeding from the incision; but I was called again to see the child about two o'clock the next morning on account of severe nosebleed.

I do not know exactly what is the matter with the child. I have seen the father on two or three occasions in severe attacks of epistaxis. He has been seen by several nose and throat specialists in the city and they have never found the source of the hemorrhage. This man is often awakened in the middle of the night, with no reason whatsoever, by terrific hemorrhage from his nose. This has also happened on the street and he has visited a doctor immediately but no cause for the bleeding could be found.

This boy is a member of the juvenile football squad. He does not bruise any more than children ordinarily do, which to a certain extent would be against hemophilia. I have seen two or three cases of hemophilia and these patients bruised on the slightest provocation with the formation of enormous hematomata of liquid blood which took a long time to undergo absorption.

One of the latest issues of the American Journal of the Medical Sciences contains an article written by a New York nose and throat specialist on familiar epistaxis. Four or five cases are reported and the author apparently did not understand the cause of the bleeding. He stated that the blood platelet count, blood calcium, bleeding time and coagulation time, were all perfectly normal. He contrasted these cases with some of hemophilia in which the platelet count was decidedly below normal. In certain of the cases reported dilated blood vessels were found in the nose, but there was no definite erosion or anything else.

In Dr. Bruce's case with the history that the father has periodic attacks of epistaxis, and the child is similarly afflicted, I would be inclined to group the case among those of the familial type of bleeding rather than hemophilia.

John Walker Moore: In the case reported by Dr. Bruce the bleeding time was increased. According to my experience the normal bleeding time is three minutes. From what Dr. Frank and Dr. Simpson had to say about the patient bleeding, and with a bleeding time of five minutes I would class this patient under the general head of hemophilia.

Samuel G. Dabney: Thomas Watson says that nosebleed is sometimes a symptom, sometimes a remedy, and sometimes in itself a disease. In the greatest majority of instances hemorrhage from the nose does not come from the floor. In most instances the blood comes from some part of the nasal septum. I am inclined to the view expressed by Dr. Moore that this is an atypical form of hemophilia. However, the child does not give a definite history of this affection, nor is the family history typical. There is no evidence that either the father or child has had any severe hemorrhages; in other words, there are two important facts lacking, (a) a definite family history of hemophilia, and (b) the child has had no severe bleeding after trivial injury. I would not, therefore, class the case as one of true hemophilia.

I wish Dr. Bruce would tell us in closing whether serum was injected in the case he has reported.

James W. Bruce (in closing): There is little to say in closing. I believe the case reported is one of atypical hemophilia. The bleeding time was slightly prolonged as stated by Dr. Moore. When the blood had coagulated the clot retracted well. The child gave a history of bleeding from the nose practically all his life. His tonsils are diseased and should be removed, but under the circumstances we hesitate to recommend the procedure at the present time.

TULAREMIA: REPORT OF THREE CASES.*

By Oscar O. Miller, M. D., Louisville.

Tularemia, or rabbit fever, has a wide geographical distribution, cases having been reported from 29 states, extending from the Atlantic to the Pacific coasts and from the Canadian to the Mexican border.

Rabbit fever has been known to market men for many years, and Anderson recently reported that he had obtained positive agglutination tests in market men of Dayton, Ohio, who gave a clear history of having been infected 20 years ago. A similar case has since been reported by W. L. Brosius, Detroit, of a patient who gave a positive agglutination test, where the infection could be definitely traced to October, 1909.

The chief source of infection in Kentucky is through the handling of infected rabbits, although infection takes place by blood sucking flies, particularly the horse fly (chrysops discalis). since these flies at times bite infected rabbits and may transmit the infection to man due to contamination of their proboscis. The wood ticks, which are principally limited to Montana and the adjacent states, are not only capable of transmitting the infection from rabbits to man but are a continuous source of infection in that they transmit the organism by heredity through their eggs to the next generation of ticks. Farmers in picking the ticks off sheep may thus contaminate their hands and inoculate themselves either through abrasions on the skin or in the conjunctiva.

In Kentucky there may be a seasonal prevalence,—November, December, January,—corresponding to the opening of hunting in the winter months. However, in other sections of the country where ticks prevail, the greatest tick activity is from March to June. This is followed by the horse fly's greatest activity from June to September, by these means offering opportunities for infection the year round. Thus far farmers and their families have furnished the largest number of cases recorded due to the nature of their occupation which exposes them to infection. The next largest group of cases has been reported in market men and women, housewives and cooks. The greatest number of human cases have been caused by self-inoculation.

The organism is markedly pleomorphic, is gram-negative, nonmotile, non-spore-bearing. It is an obligatory aerobe, the optimum temperature for cultures being 37 degrees C. Bacillary and cocoidal forms are present in the same culture, the bacillary forms gradually disappearing as the culture ages; hence the term bacterium tularense, rather than bacillus. Patients suffering from tularemia may show cross agglutination with bacillus abortus and micrococcus melitensis.

The following three cases were referred for suspected tuberculous adenitis and I am indebted to Dr. E. Harris Fischer for permission to report case number 1.

Case 1: On March 10th, Mrs. F. W. S. was referred to me by Dr. E. Harris Fischer for a possible pulmonary tuberculosis. She gave a history of having undergone an operation February 10th for an adenectomy in the axilla, which was diagnosed as tuberculous adenitis on microscopical section. Her chief symptoms at this time were malaise, languor, marked asthenia, and anorexia.

Physical examination of her chest was negative. There was a scar in left axilla from which drained a scanty amount of seropurulent material. Her pulse was 78, temperature 99.5°F., at 4 p. m. Following the examination the patient volunteered the information that all her trouble and disability dated from a scratch on her finger on November 20, 1926. Since an infection by inoculation with tubercle bacilli is rather rare it was believed that this lesion could hardly be tuberculous. Further inquiry elicited the following history:

The patient states that she has always been in good health; that the present illness began following a scratch on the dorsum of middle left finger one-quarter inch below the nail, which occurred Saturday, November 20, 1926, while dressing a rabbit. The following Tuesday the finger began to get sore and swollen. The lesion remained local and the patient treated it herself. The finger continued to get worse, it felt hot and pulsated. She then consulted Dr. Fischer on November 26, who treated it with local applications. Dr. Fischer states that at this time it was an ulcer the size of a matchhead with a scanty discharge.

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*Read before the Jefferson County Medical Society.

The lesion remained localized until November 26 when the patient complained of pain in the axilla. Two weeks later Dr. Fischer noticed swollen glands in the left axillary space. About December 18th there was a mild lymphangitis. The patient noticed that there was stiffness in the elbow joint, she was unable to fully extend arm, and the tendons would pull and bulge at the elbow joint. On Saturday, January 14th, the patient awakened and noticed that the arm was swollen from the middle of the left meta-carpus to mid-humerus. She had spasms of pain and it felt as if it were raw and salt were being applied. These burning pains lasted a few minutes. There were no chills although she complained of being hot and panted as if she had been running. These spells continued throughout January 15th and 16th.

On Sunday morning, January 15th, the swelling in the arm disappeared. Dr. Fischer informs me that on February 10, 1927, the axillary glandular enlargement was quite marked and fluctuation was present. At this time she underwent operation and several infected glands were removed from the axilla along with about an ounce of yellow fluid apparently pus. A drain was inserted and removed on the sixth day. On March 4, 1927, the wound was about healed and by the 18th it was entirely healed.

From the foregoing history it was patent that the infection was due to bacterium tularense rather than bacillus tuberculosis. Dr. Fischer later secured a specimen of blood and through Dr. Graves forwarded it to the Hygienic Laboratory, which reported that it was positive for tularemia.

Case 2: C. H. D., aged 21, manager of a grocery, had previously been examined in our clinic January 12, 1922, and diagnosed as pulmonary tuberculosis, minimal. He had been treated at Waverly Hill Sanatorium from February 1, 1922, to June 3, 1922, and discharged as improved. At that time he was 15 years of age. He had reported from time to time for re-examination to see if his lesions were still arrested. On January 3, 1928, he again visited the clinic, his chief complaint being tenderness in the left axilla. There was a mass one and one-half inches in diameter indurated at the base with a fluctuating center and tenderness in the surrounding tissues. Naturally with a history of tuberculosis one suspected a tuberculous adenitis. Being fully aware of the prevalence of tularemia, a more careful history was taken which elicited the following:

The patient had discontinued work four weeks ago (December 1927), but he was taken suddenly ill three weeks prior to stopping work. At this time he went home and went to bed and had severe chills and high fever. He remained in bed one week and the temperature subsided while in bed. He had no cough or expectoration. There was no evidence of a grippal attack or an acute tuberculous exacerbation. He returned to work and worked five days but noticed that he was extremely tired and weak. He recalls that his left axilla was sore when he went to bed the first time, seven weeks ago. During the five days that he worked and at the time of his relapse he observed some swelling in the axilla.

About two weeks prior to becoming ill, that is, nine weeks ago, he had a festering sore on his left ring finger, second phalanx external border that had a slight discharge, which persisted for about a month. Upon examination there is noted a healed lesion on the left ring finger with four punctuate areas which had previously discharged periodically. There never was any soreness or red streaks (lymphangitis) on his arm. The lesion had healed he states before he noticed any axillary swelling. On or about the time he became ill he had occasion to handle rabbits in the store. At the present moment he stills feels weak, nervous and trembling and is unable to work. On the classical history the diagnosis was made of tularemia.

The blood was sent to the State Board of Health Laboratory and gave a positive agglutination test for bacterium tularense in dilution of 1 to 1280. The patient had a further disability of four weeks. The last report, three weeks ago, stated that he was working and apparently well.

Case 3: The next patient Mrs. G. E. W., housewife, aged 26, was referred to the clinic on January 3, 1928, by Dr. D. M. Embry, of Oakolona. Her chief complaint was "lumps" under both arms. Physical examination of the chest negative. Both axillas presented definite adenitis. In the right axilla the lymph nodes were swollen and indurated. In the left the lymph nodes were larger and matted together and showed a slight discharge. The patient was unable to give a very intelligent history.

She stated that on the 26th of November she had a sore on the knuckle of the left ring finger and that one week later she developed a sore on the knuckle of the right index finger. During the first week she had fever and was told that she had la grippe. There were no sweats. When she was first taken sick she had chills, fever, her knees hurt and she was weak and nervous. She states that she handled a dressed rabbit on the 26th when she took sick. She complained at the time of examination (January 3, 1928) of pain over the left tibia, lower third, which was swollen, indurated, tender and red. There was also some tenderness over the shaft of the fibula. There were no enlarged lymph nodes in the popliteal space. A diagnosis of a possible periostitis was considered as an incidental finding and unrelated to the evident rabbit fever. Roentgen-ray examination of the limb was negative.

A diagnosis of tularemia was made and the blood sent to the State Board of Health Laboratory which reported positive for agglutination of bacterium tularense in dilution of 1 to 1280. Dr. Embry reports that the patient is doing her house work but still has a marked asthenia.

I am indebted to Dr. Stuart Graves for the following pathological report: "Gross description specimen consists of two grayish white nodules, each 15 mm. in greatest diameter. Cut surface yellowish gray, soft. Microscopical description: Miliary and conglomerate areas of necrosis surrounded with zones of proliferating fibroblasts and endothelials and lymphocytes. One large typical foreign body giant cell in edge of one area."

Dr. Frank B. Mallory also examined the slides and reported that the sections simulated chronic tuberculosis very closely.

Discussion: Tuberculous axillary adenitis is by no means rare. The percentage of infection in the various regional lymph nodes varies from 81 to 93 per cent for the cervical and occipital, and the axillary from 6 to 2.78 per cent. The axillary glands are composed of from 8 to 10, or even 15 or more in numbers; "they drain the skin of the upper part of thoracic wall, the upper abdominal region and upper extremities. They are also connected with the lateral group of the inferior deep cervical glands." Hence infection is quite possible from the upper thorax. The most frequent source of infection is due, however to tuberculosis of the hand or bones of the hand and arm.

The report of tuberculosis on the microscopical section is a perfectly legitimate and common mistake, since the sections closely resemble tuberculosis in that they are characterized by areas of focal necrosis which show a central caseous zone surrounded by a layer of epithelioid cells and at times fibroblasts in radical arrangements, surrounded by lymphocytes, among which may be observed a moderate number of giant cells. Since bacterium tularense has not been observed in stained sections of human lesions, the only positive method of differentiating the two diseases, would be the demonstration of tubercle bacilli in sections either by staining or animal inoculation.

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TULAREMIA.*

By C. H. Harris, M. D., Louisville.

The bacterium tularense was discovered by McCoy and Chapin in 1912, as the cause of fatal epidemic in ground squirrels, in Tulare County, California.

Wild rabbits are the principal animals affected and are the chief source of the disease. It is usually transmitted as a result of skinning, dressing, or otherwise handling rabbits. It has a very short incubation period, probably not more than five days, but may be as short as one, or as long as nine.

The bacterium generally finds entrance through the skin, producing an ulceration at the point of infection, and is usually found on the hand. The lymph glands which drain the infected region become enlarged, generally red streaks may be seen following the lymphatic channels of the arm, where nature makes an effort to block the infection about the elbow or axilla.

The disease produces symptoms of toxemia, night sweats, headaches. Sometimes the infection finds entrance through the eye producing conjunctivitis with tenderness and enlargement of the glands in the region of the ears and neck. Occasionally the lymphatic glands break down, abscess formation occurs. The symptoms which generally follow any sort of an infection producing pus ensue, such as chills, sweating, prostration, etc.

Death is rare in the disease, but recovery is slow. Blood stream infection, caused from eating uncooked rabbits containing the bacterium, may be fatal.

Nine cases of tularemia reported in the City Health Office, January 3rd to January 16th, 1928. No doubt many more cases existed than were reported, because they were not recognized.

In each of the cases, the test was positive and no deaths were reported from the trouble. The disease is usually seen in the rabbit season, from November to February.

The writer had three well defined cases in his private practice. All nine characterized by one or more sores on the finger or hand with a raised, hard area very definitely limited and containing a so-called core. Each of the patients had fever and night sweats, red streaks on the arms to the elbows, lymphatic enlargement and tenderness extending into the axilla.

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*Read before the Jefferson County Medical Society.

One patient, Mrs. K., had a large abscess near the elbow, which was opened and drained; another in the axilla, which was treated likewise. The original site of the infection was cauterized with nitrate of silver, and each patient was given syrup of iodide of iron three times a day. One patient was an elderly lady who had lost weight and who became very anemic and mentally depressed.

Tularemia is reportable to the Health Officer under the general blanket provision that all infectious or contagious diseases that might be epidemic in character are to be reported.

We are equipped in the City Laboratory to make the agglutination test.

DISCUSSION.

Paul A. Turner: The two papers we have just heard on tularemia are very timely, because I understand quite a number of cases of this disease have been reported throughout the state. I think the principal reason for asking me to discuss the subject is the fact that shortly after Francis discovered the bacterium tularense in man, I discontinued my studies in tuberculosis for a while and engaged in health work in the state of Washington. I believe, therefore, that I will limit my discussion to a description of the work that was done on tularemia in Montana at that time. The majority of the tularemia cases which came under the observation of Francis were from Montana. He sent many specimens to Washington, D. C.—Hygienic Laboratory—for further study. To show how virulent the infection is, let me state that nearly all of the workers under Francis contracted the disease. Therefore the experimental study of tularemia is not a very pleasant undertaking; particularly in Montana is this dreaded because one is flirting with death when he goes into the sage brush searching for deer flies and wood ticks where Rocky Mountain spotted fever may be contracted.

While Francis and Spencer were working with deer flies, and on account of the fact that where we were in the state of Washington there was a severe epidemic of rabbit disease, many rabbits dying after having been bitten by ticks, we thought possibly the wood tick might be the host of the bacterium tularense. After discussing the matter with those connected with the laboratory, we concluded to make some experiments with the woodtick in relation to rabbit fever. Our experiments showed that the wood tick was the host of the bacterium tularense and the bite of the tick transmitted the disease to the rabbit. The following year there was no epidemic among rabbits and no tularemia. That year I read a paper before the American Medical Association in San Francisco stating my belief that the wood tick was responsible for most of the tularemia we had in the state of Washington. Since that time it has been definitely proved that the wood tick is the host of the bacterium tularense.

It is not a pleasant task to go into the sage brush,—I was never called upon to do that as it was a part of the work of those connected with the laboratory,—and collect wood ticks and be certain that you are not bitten by one of them. The fear is not so much concerned with tularemia as the fact that the same ticks transmit Rocky Mountain spotted fever. Years ago Rocky Mountain fever was a very virulent disease and the mortality was exceedingly high. In late years the mortality has not been so great, but ten per cent of the patients still die. As a precautionary measure the men who collect these ticks undress every hour or two and search for ticks in their clothing. Even with all these precautions Spencer became infected and had to abandon his work for several months, but recovered and has resumed his investigations.

I may say that in Washington and Montana some relief may be obtained, because this year they are going to turn loose a lot of parasites under the belief that they may kill the ticks. It is questionable, however, whether these parasites will live; it is an experiment they are going to try.

I have seen quite a number of cases of tularemia accompanied by adenitis in which the diagnosis of tuberculosis was made. In such cases the laboratory is of little or no assistance in diagnosis so far as the local lesions are concerned. The blood, however, shows the typical agglutination of tularemia. Day before yesterday a patient was sent to Hazelwood Sanitarium from Hazard, Ky. He had tularemia in the early stage with glandular involvement and the diagnosis of tuberculosis adenitis had been made. There is another type in which the symptoms closely resemble those of typhoid fever. In these cases the laboratory will assist very materially in making an accurate diagnosis. I think it is well in every case of tularemia to have the diagnosis confirmed by the laboratory, because the physician is then able to say there is little danger of a fatal termination. I do not recall any case of tularemia in which the patient died, so I think we can always tell the family that the prognosis is favorable.

PROGNOSIS OF CRANIO-CEREBRAL INJURIES.*

By John J. Moren, M. D., Louisville.

The frequency and possible grave symptoms following injury to the brain always justifies a discussion. Experience governs our opinion and conclusions as to the possible results from various accidents, consequently one may see a difference in opinions. The compensation doctor sees possibly more functional disturbance while the general surgeon will see less functional and more organic injury. Naturally their opinion would vary somewhat as to the outlook of injury cases.

The importance of trauma as an etiological factor may be appreciated when our text books on neurology list some 15-20 clinical manifestations as caused or precipitated by injury to the nervous system.

The results of an injury to the brain are either concussion, contussion, laceration and compression with their consequences. If the injury is sufficiently severe to do damage or result in compression, there is no argument; the individual will suffer in proportion to the damage done. There is real pathology present. If only concussion occurs a train of subjective symptoms may follow that will give rise to quite a discussion between doctors and is often terminated before a jury.

Oppenheim taught that in the traumatic neuroses there was a molecular disturbance in the nerve cell. The late war furnished him sufficient evidences before his death to confirm such an opinion.

I have no knowledge of any real support of these theories. In many of these cases it becomes a matter of opinion based upon the nature and severity of the blow which occurred to a certain type of individual. It is important that we consider the personality and environment of the accident. This may seem unimportant but experience reveals evidences to that effect.

The question of concussion is an open field for discussion. All of you have seen cases which have made good and bad "come-backs." Often it is hard to realize how a simple cause can result in so much trouble.

Ritter of Zurich, studied 600 cases of concussion and divided them into three types. I quote Fiertz, Journal Nervous and Medical Diseases, September, 1926:

1. "Concussion Medulla Oblongata . The symptoms of this concussion of the medullae are unconsciousness, disturbances of respiration and circulation, vomiting and changes in the blood pressure: in brief nothing but symptoms referable purely to the medullae. Loss of consciousness is its outstanding feature. It is constantly present and always accompanied by the retrograde amnesia. The distinguishing characteristic of this picture is the short duration of all these symptoms and that they are the most pronounced at the very beginning, that is, immediately after the trauma. In other words we have to deal with nothing else but the pressure curve of Kocher read backwards showing its full development at the beginning and then gradually vanishing. The after-effects of this medullae concussion, such as general weakness, rapid fatigability, lack of concentration, labile mood, dizziness and headache are of transitory character only and within time they vanish completely without leaving any residuals. It has been found that about 65 per cent of such cases did not show these after-effects at all, and in those cases where they were present the duration was a very short one, lasting on an average of three to six months, the maximum being three years. The average time needed for recovery was twenty-nine days.

2. Cerebral Concussion. This concussion of the brain in the strict sense of the word is characterized by the presence of definite cortical symptoms. Its symptoms are vertigo, swaying gait, headache, malaise, loss of appetite. There occur quite irregular irritation symptoms of the cortex, such as slight twitchings of the limbs, of the face, mild pupillary differences, etc. Alternations of the pulse as well as loss of consciousness and retrograde amnesia are very inconstant. If loss of consciousness is present it may persist up to ten hours, whereas in the medullae concussion its duration is in general but a few minutes and the maximum of about four hours is very seldom reached. Important for the differential diagnosis is the absence or at least not constant presence of a primary affection of respiration or circulation, the only rare occurrence of vomiting and never any rise of temperature. In this form are the characteristic after effects which almost constantly occur after the initial period of shock and depression or mental inhibition, as one would call it, lasting on an average of three to four days, which is followed almost regularly by a period of exaltation, lasting about four to five days. The after effects are complaints of headaches, dizziness, fatigability, general dullness, flickering of vision. The recovery takes an average

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*Read before the Jefferson County Medical Society.

of fifty-four days and the remaining symptoms last on an average of about nineteen months, the maximum being five years. The most important of the remaining symptoms is the so-called encephalosis, which is characterized by a true weakness of memory and by marked headache and dizziness, and general impairment of mental efficiency.

3. Diffuse Cerebral Concussion. In many instances there is but a gradual difference between this form and the concussion just mentioned, but it is characterized by the presence of definite focal symptoms of an affection of cortical areas. Those focal signs may be but very slight and in general are of very diffuse character. We may have irritative and paralytic symptoms of the motor and sensory areas, auditory, visual, olfactory disturbances, agnosia, apraxia, aphasia, disturbance of vegetative nervous symptoms, etc. All these symptoms are multiple, profusely scattered and inconstant in their localization. They may vanish in one region and appear somewhere else. It is typical of these initial symptoms to last out a short time; they may disappear in a few hours, sometimes in two or three days. Disturbances that last longer must be considered as being conditioned by more severe local lesions. There occurs an almost constant elevation of temperature up to about 101, which may persist for about a week. The duration of the after effects, which of course in this form are more marked than in the other two, is rather long, sometimes five to ten years, sometimes remaining for the whole life. The average time of recovery was 98 days."

Brain Injury: The mortality statistics as gained from the literature varies slightly. This doubtless is on account of the class of work. All hospital reports practically agree on a mortality of 40-50 per cent. All severe cases are rushed to the hospital which give a higher mortality. In the more recent reports the mortality is not so high, possibly explained by newer methods of handling such cases. Carter, Cincinnati General Hospital, reported 223 cases that occurred in 1922-1923, with a mortality of 35.8 per cent, while Phelps in 1909 reported a mortality of 46 per cent. Vance, Bellevue Hospital, reports 61 cases, 34 operative with 23 deaths, 11 recovered; 27 recovered without operation in 20-24 days, a mortality of 37 per cent.

Stone, J. A. M. A., April, 1927, reports the ultimate results in a group of 54 cases available for examination among 101 who survived out of a group of 200 cranio-cerebral injuries occurring in Cook County Hospital during 1924-1925. The re-examination was made from six to thirteen months after the injury.

74 per cent made complete recovery.
18 per cent partial.
8 per cent no improvement.

The loss of reflexes had returned in all but two cases. The inequality of the pupils had disappeared.

The sequelæ of the injury he reports as follows:

Headache in ten cases, vertigo four, emotional change three, photophobia one, loss of memory one, general weakness one, trembling of hands one, hemiparesis one, facial paralysis one, traumatic psychosis three, restlessness one. The patients included in this report happened not to be troubled with compensation and therefore would illustrate about the average percentage of defects following injuries. Doubtless had Stone heard from more of his cases he would have had a smaller percent of recoveries. This is a much higher per cent than any other report I was able to find.

Carpenter makes the following statements in accident insurance work (Texas State Journal of Medicine, April, 1924).

"The comments embodied in this article on headaches and pain in the head are based to a great extent on a study of the records in 3,000 head injury cases from the files of a large insurance company, and from personal observation and treatment of many of these cases, as well as numerous cases during the last ten years of private practice and in the army. The series of 3,000 head injuries occurred among 138,500 general accidents during a period of seven years. In every twenty-five who received head injuries, one died, which was thirty per cent of all deaths during this period. Of these deaths eighty per cent occurred within twenty-four hours after the accident. There were many who made good recoveries within six months, even in the face of rather serious injuries, while a total of sixty-seven are now classed as partial permanent or total permanent disability cases. There was one case of genuine traumatic insanity. Epilepsy occurred one time, as a result of head injury, but epilepsy was the predisposing cause of the accident in numerous instances. Hemiplegia, the most frequent major symptom in head injuries, ultimately recovered or partially recovered, in all cases, with or without operation, unless death intervened within thirty to sixty days after the accident. Cranial nerve injuries were a frequent occurrence, but total blindness or deafness did not result in any case from injury to the brain. Facial paralysis recovered in all central lesions, but was permanent in four peripheral injuries, while diplopia as a permanent disability also occurred four times.

In sixty-seven partial permanent or total permanent disability cases, over seventy-five per cent were from headaches or pain in the head, often associated with general weakness and vertigo. The severity of the pain has become less in many of these cases in from eight months to a year, and has disappeared in numerous cases after from two to five years time. Three cases with severe localized pain, apparently brain abscess cases of long duration, died within the last six months, without operation at any time. The majority of these cases had a definite fracture of the skull, and many of them had undergone trephine operations at the time of the accident.''

The prognosis is materially influenced by the age of the patient. In early life the mortality and results are far better than in adult, and especially the aged. Naturally the health of the individual would be considered in all cases. The location of the injury is important, as fractures of the base, which are so liable to injure important cerebral centers. The cause must be considered, as often a severe blow to the head will have no bad effects, while a scalp wound from a high velocity bullet will cause grave concussion.

It is hard to determine how much damage has been done in a closed vault. The x-ray reveals the damage to the bone and it remains for us to judge the injury to soft parts by clinical signs.

Having been called to a head injury case what signs are of value in estimating the amount of damages? A depressed or compound fracture is sufficient in such cases. Those with convulsions or paralysis are unfavorable signs. In those without outward manifestations the degree of unconsciousness, dilated, unequal and fixed pupils, absence of reflexes and temperature are the most valuable.

In regard to prognosis, Rawling considers that all cases of head injury may be grouped into four classes, dependent upon the temperature changes as follows:

''Group 1. The temperature, at first subnormal, undergoes a rapid and progressive rise. Prognosis most unfavorable.

Group 2. The temperature, at first subnormal, rises gradually to 101 or 102, and there ''marks time.'' This hesitancy marks the crisis of the cases, further elevation indicating a fatal result, whilst a fall offers every hope of recovery.

Group 3. The temperature, at first subnormal, rises to normal and remains at that level. Prognosis very favorable.

Group 4. The temperature, at first subnormal, remains subnormal. The condition of shock persists, and the prognosis is most unfavorable.''

Carter reports a mortality of twenty-six per cent who had normal temperature. He says that the temperature on admission means little unless it is extremely high, or unduly low. In either event offering a poor prognosis.

Unconsciousness was a guide of the older writers and is still an important prognostic guide. Carter reports a mortality of 66 per cent against a mortality of less than one per cent in patients who did not lose consciousness. Phelps reports 318 deaths out of 542 unconscious cases against 80 deaths in 289 who retained consciousness. The time of the appearance of consciousness is more of a diagnostic than a prognostic sign.

Bleeding from the nose or ears has a mortality of from 40 to 60 per cent against no bleeding 12 per cent.

Pupils: Dilated, fixed pupils is a very grave sign. Even a dilated pupil on one side has a very high mortality, 52 against 23 per cent with no pupilary change.

Reflexes: The mortality in 183 cases with normal reflexes is 28 per cent against a mortality of 100 per cent in those with absence of reflexes. However, all reports do not show such a high mortality in those with absent reflexes.

The value of the reflexes as an aid in prognosis should be associated with other symptoms as they are liable to vary more than the temperature or consciousness. The value of spinal puncture indicates the intracranial pressure which is of value in estimating the importance of other signs.

Surgery: The mortality in those operated upon is very high. In those presenting local signs, and not too severe damage to the brain, brilliant results are accomplished. The neurologist is not enthusiastic about the results from a simple decompression. It is a chance to do good, but can it overcome the increased intracranial pressure? So many cases present only general cerebral signs and you may decompress at the least affected point. This raises the question of contre-coup injury.

An interesting article by Lecount, February 21, 1920. J. A. M. A., detailed the findings in 504 post-mortem examinations on fracture of the skull.

In posterior fossæ fractures, 83.7 per cent showed the largest damage was contre-coup and only 8.9 per cent direct.

In the middle fossæ 62 per cent were contre-coup and 25.9 per cent direct.

In frontal fossæ 21.3 per cent contre-coup and 57.3 per cent direct.

In extensive comminuted fracture of cranium 62 per cent contre-coup and 28 per cent direct.

Fracture of the vault: 79.5 per cent contre-coup, 18.3 per cent direct.

In those cases that recover from the effects of the injury their complications and sequelæ are important.

One of the most prominent symptoms is the question of epilepsy. Statistics show that in head injuries, especially in gun shot wounds, that four to six per cent develop convulsions. This percentage is for adults. In children epileptic seizures occur in thirty to fifty per cent of the hemiplegic, and 2.3 per cent of all epileptics are related to birth injury, consequently we must be guarded as to the probable future development of convulsions by the age of the patient.

Injury to the parietal lobe is more prone to the development of epilepsy than other portions of the brain. However, convulsions have occurred from injuries in all parts of the brain.

From the study of the cases in the recent war, the best English authors feel that there is some other cause than injury in the development of epilepsy. There is a predisposition or tendency in certain individuals that is not present in all, otherwise we would have a larger percentage of epilepsy following injury than we do have.

In reviewing the literature I find an interesting report of a child who received a penetrating wound to the skull at the age of five, from which it recovered. Thirty-one years later, and four years after contracting syphilis, he developed convulsions. He died in a status epilepticus, and the post-mortem examination showed the typical findings of general paresis and an old scar at the site of the original wound. The physician stated that doubtless this man would never have had convulsions if he had not had the syphilitic infection.

Insanity: There is no striking clinical mental picture following trauma. Injury can bring out any clinical type. A recent study by Eager, of England, showed that the frequency of insanity following injury is no greater than the average percentage of the population. In his study less than one-half of one per cent showed mental symptoms. Mott says apart from syphilis, alcohol and heredity, injury was seldom the cause of mental affections.

Healy, in a study of 4.000 delinquent children under sixteen years of age, found that 3.5 per cent had received head injuries, with loss of consciousness.

Ebaugh recently commented on the behavior of children after injury as resembling those following epidemic encephalitis.

Headaches are most common and persistent of the sequlæ. Stone gave a percentage of less than twenty per cent, while Carpenter gave a percentage of seventy-five per cent in sixty-seven cases.

It was interesting to note Trotter's explanation of these headaches, which he attributes in many instances to an unresolved contusion of the brain, which leads to increased intracranial pressure. The duration of the headaches has been variously estimated from three to five years or longer.

SUMMARY.

In reviewing the prognosis we may conclude the following:

The mortality can be pretty safely placed between thirty-five and fifty per cent. Two-thirds of the deaths occur within the first twenty-four hours. Barring complications of hemorrhage and infection, the mortality after the first twenty-four or forty-eight hours is decidedly more favorable. Simple fractures, especially of the vault, have only a mortality of ten to twenty per cent.

Of those that recover practically 40-50 per cent can be considered free of symptoms. and capable of earning their old wages, of the remaining the majority will suffer from various sequelæ or partial disability, leaving the smaller percentage as total permanent disability.

The outlook or restoration of cerebral function is more favorable than from other causes. This is explained by the location of the lesion. The contusion or laceration involves the cortical structures in injury more frequently than the deeper structures. If the deeper structures of the brain are involved the outlook is more unfavorable.

The possibilities of the development of post-traumatic affections, as insanity and epilepsy, are very small. Headaches are common and persistent and more frequent in compensation cases.

The post-traumtaic psycho-neuroses are hard to prognosticate. Whether they are dependent upon slight structural change, a mental reaction, or a desire to seek compensation, are questions to be decided in the individual cases.

I wish to call your attention to two clinical experiences. First, I have seen more nervous manifestations from injuries directed longitudinally, as injury to occipital or frontal area. Second, I have seen less effects from concussion arising from injury while at play, as baseball, jockies, etc. Furthermore, children do not suffer from psycho-neurosis as do adults.

DISCUSSION.

C. G. Forsee: I am sure we have all enjoyed Dr. Moren's most excellent and comprehensive paper on the symptoms, sequelæ and prognosis of brain injuries. In the first place, the theory of molecular disturbance as a cause of concussion of the brain is hardly in accord with my ideas of concussion. This is Oppenheim's theory. The theory of Duret implies that variation in specific gravity between the cerebrospinal fluid and the blood is the cause.

The initial symptoms of head injuries may be divided into three classes. (1) The anemic stage, Anemia of the brain always causes paralysis, or it immediately follows, as in concussion. That is my idea of concussion, i. e., it is simply anemia of the brain due to the blow. (2) Following that there is always a stage of irritation. That is the stage of engorgement of the vessels of the brain due to direct involvement or the edema which follows. Edema of the brain is frequently spoken of as a cause of paralysis, which to my mind is practically impossible. The only symptom that can occur from edema is irritation from compression of the brain tissue itself. (3) Following edema is a condition which develops as a result of compression from engorgement of blood in which stasis has occurred and pressure is exerted on nerves inside the cavity. If we could take the skull containing the brain without the various convolutions and compartments that exist, this study would be a very simple mechanical proposition; but we have to consider, also, that the blood is flowing into the arteries at pressure of 150 to 160 mm. Hg. and going outward at zero or even less than zero. That is a mechanical factor which has to be considered in brain injuries. My idea of concussion is that it is simply a temporary anemia produced by the blow received.

In the study of head injury cases I think a history as to loss of memory following injury is one of the most important things we can develop in determining the real amount of damage that has been done. Most of the cases I see are in men who have been hit on the jaw or on the head with a jack lever. When such a man comes to the office and gives a clear description of how the accident happened, my conclusion is that he is not hurt very much. If the man comes to the office and says he was hit on the head by a jack lever, but does not remember much about what happened, say, for half an hour to four hours before the injury occurred, my conclusion is that man has received a severe injury. He has had a blow sufficient in violence to produce forgetfulness or loss of memory that so frequently occurs after severe head injuries.

As to the sequelæ of these accidents: In my experience headache is perhaps the most common. However, I have not seen any cases in which the headache was persistent as some authors have reported. In the cases I have seen the headache has always disappeared. Next in frequency is perhaps sensory or motor disturbance of some special nerve. Ordinarily it is stated in text books that the nerves involved are those passing through foramina in fractures. That has not been in accordance with my experience. I have had cases of this kind in which there was nerve injury without fracture, that is in injuries where there was no demonstrable evidence of fracture in that portion through which the nerve emerged. That is a condition which in my experience has been rather commonly noted. Another sequel which I have observed from severe head injury is epilepsy. During my experience I have seen three cases in which epilepsy developed anywhere from two to ten years after the accident occurred, and I am prone to believe that in serious injuries of the vault of the cranium there is always a possibility of epilepsy developing as a result of the accident.

While Dr. Moren's statement about the pupils may be correct from the standpoint of statistics, I think that is one symptom which would necessitate study of the patient from day to day to determine anything of value. For example, one pupil may be contracted today and be dilated tomorrow and the pupil of the opposite side be dilated and so on. Therefore if the pupillary symptoms are to be of any value as a prognostic sign these symptoms must be studied as they arise.

This leads to another phase of head injury. Much depends upon whether the injury is one that will produce hemiplegia, which of course means in the cortical motor area, or whether it is through the pyramidal tract, or whether the injury to the brain is in mid-brain, or whether it is bulbar. This has a great deal to do with the prognosis of brain injuries and an entirely different train of symptoms will follow.

In the study of brain injuries it is often times impossible to determine definitely just what has happened. It is my impression that too many head injuries are operated upon either immediately following the accident or later. Head injuries operated upon should, and the most of them do have, definite symptoms as indications for the operation. Outside of definite focal symptoms, I would say that the most definite indication for operation, where we cannot point to a localizing area, is persistent delirium which is frequently seen followng head injuries. If persistent delirium occurs decompression seems to benefit the patient. If decompression is decided upon it should be performed without delay.

B. F. Zimmerman: There are so many things to be said in connection with the subject Dr. Moren has presented to us that one hardly knows where to begin. In studying the prognosis or ultimate end of patients who have received serious injuries to the brain there are several factors that must be considered. These in the main Dr. Moren has presented to you in his paper.

They come under the headings of: age, sex, previous habits, personality of the individual, nature of the injury, severity of the injury, and the treatment subsequent to the injury.

As Dr. Moren has told you, in childhood and youth the sequelæ of brain injuries are verly likely to come under the head of epilepsy or paralysis and are not dependent on the psychoneuroses, or present the symptoms which are so prone to be termed functional disturbances, as do those in later life.

As to ultimate and complete recovery, it has been my observation that the healthy, robust adult has the best chance. I think that in women, while brain injuries are much more infrequent in the female sex, it has been my observation that complete recovery is more to be looked for in women than in men. That is probably due to the fact that the habits of women, especially with regard to the indulgence in alcohol and other forms of dissipation, are better than those of men.

Chronic edema, headache and psychoses are much more likely to develop after the middle period of life than they are in early adult life. Take some of the old gentlemen we see frequently in the hospital, with degenerated arteries, possibly diseased kidneys, etc. If such an individual sustains a head injury his chances for complete recovery are much less than the healthy and strong individual of early manhood. Alcoholism and syphilis are very important factors. If one of these exists as the groundwork and superimpose upon that a severe head injury, the outlook for complete recovery is not good. Take an individual who, before he sustains this injury, is one of nervous temperament, easily distressed, becomes hypochondriacal, etc., he is going to have a hard time after brain injury.

As to the nature of the injury, a simple blow on the head by a blunt instrument such as a hammer or a brick hurled at the head, is likely to produce rather limited damage; whereas a fall from a distance on the head on a flat surface or a crushing injury, will in all probability produce very extensive damage to the brain. Injuries sustained in the former way are usually very easily managed. If there is a depressed fracture it is elevated, and if there is not a depressed fracture one may be reasonably assured that damage to the brain is not very widespread and may make a correspondingly favorable prognosis in such a case.

Injuries which produce fracture of the base of the skull are, of course, the most serious. And allow me to say, just here, that I am very glad to see the gentleman who preceded me has not dwelt on fracture of the skull, because fracture of the skull is only important as indicating the possible severity of the injury, the location of the fracture, and possible site of damage to the brain either at the site of fracture or on the opposite side; in other words, it shows the direction of the force. The fracture of the bone, of course, has nothing to do with the prognosis of the case except it be the point of fracture, whether it be of the vault or whether it be at the base. Fractures at the base are regarded as unusually dangerous simply because the force that produces the fracture is certain to produce widespread damage to the brain, such as laceration and extensive hemorrhage. If we could tell exactly what condition we have inside the cranium we could know very well just what to do in the treatment of these individuals. We may have, for instance, extradural hemorrhage, we may have subdural hemorrhage that does not involve the arachnoid, and we may have hemorrhage that is subarachnoidal. Extradural and subdural hemorrhage is easily controled. Subarachnoidal hemorrhage indicates extensive irritation of the cortex of the brain, it is very difficult to successfully control, and is very prone to leave subsequent cortical irritation with serious results.

In many of these cases where symptoms of concussion develop, as stated by Dr. Moren, we have punctate hemorrhages in various portions of the brain. The patient may have gross hemorrhage to be later followed by symptoms of compression as the result of edema. In such a case as that we know what we are going to have and naturally make an unfavorable prognosis. I think concussion of the brain is an unfortunate term. Oppenheim's theory that it is due to molecular disturbance of the brain is merely a theory and must always remain such; in other words, it is a guess, because no one can demonstrate what the molecular constitution of the nerve cell is.

Concussion is brought about usually by a force that is far in excess of any physical force that ordinarily produces compression. If this persists for any length of time it certainly results in more or less damage. A blow upon the head without opening the skull causes pressure to be suddenly greatly increased above that which can possibly be produced by any physical force and when the pressure is just as suddenly released the symptoms of compression appear; but in those instances of compression of the brain that in all probability give rise to symptoms of concussion, an injury that will produce such marked disturbances in the circulation of the brain, such complete anemia of the brain, it would be more reasonable to presume that such force as this would produce damage to the brain probably in the nature of punctate hemorrhages and lacerations. Then, we also have extensive lacerations of the brain which are always serious, because they always lead to localized edema, sometimes general edema, and the outlook is unfavorable where we have extensive lacerations.

As to the treatment of brain injuries: Almost two years ago, as probably some of you will recall in this room, I took the stand as Dr. Forsee mentioned a moment ago, that entirely too many cases of head injury were subjected to radical operative procedures. Since that time I have seen nothing to change my views on that question. I am rather more conservative at the present time than I was then.

When intracranial pressure exists I doubt very much whether it is ever relieved by the ordinary subtemporal decompression, If we could be fortunate enough to determine in advance the exact location of the lesion causing pressure, be it edema or extensive hemorrhage, and open the skull at that particular point and thus relieve the pressure, well and good; but in how many instances is such determination possible? I believe if decompression is to be done, and it may often be necessary to relieve pressure as a life-saving measure, it should be rather a cerebellar decompression than one of the cerebrum, because the factor that destroys life in these cases is paralysis of the bulbar center, and by doing cerebellar decompression, which is just as easily performed as subtemporal decompression, pressure is relieved at the very point where it is most desired.

I am of the opinion that repeated lumbar puncture and withdrawal of fluid together with the use of hypertonic solution in the amount of 50 to 100 cc. depending upon the degree of pressure indicated by the spinal manometer, is at the present time the best treatment that we have. Very few of our cases in the city hospital ever come to operation, and we usually have half a dozen on the ward, and sometimes even more than that. And I am sure,—but Dr. Spurling can tell you more about this,—that our mortality here is less than shown by the mortality statistics Dr. Moren has given in his paper. On the other hand I think decompression sometimes does good in relieving certain sequelæ of brain injuries. I have referred particularly to those cases, which are not very common, in which we have following injury, and they are more frequently noted in those in the middle period of life, where there is chronic edema of the brain which interferes with normal nutrition and normal function because of pressure. The only way we can determine the degree of pressure, and this is usually some weeks after the accident, is by withdrawing some of the cerebrospinal fluid and noting the findings. If intracranial pressure is far beyond normal limits and remains so, then I think the rational and logical procedure is decompression, giving the brain a chance to expand and thus insure a greater amount of nutrition.

George A. Hendon: This discussion has been extremely interesting to me on account of the fact that my experience has been exactly opposite to that which has been described. In the first place I could not quite follow Dr. Moren's mathematics, but believe he claimed that more people die from brain injuries who are operated upon than who are not operated upon. I can explain that in a single sentence: it is because surgeons do not operate for trivial injuries of the brain, it is only the patients who are seriously and gravely injured that come to operation. Patients presenting evidences of mild injury are treated on what we are pleased to call the expectant plan, and the expectation of their recovery is usually well founded.

When we are confronted with a brain injury it is well and wholesome to formulate some simple rules that will guide us in our conduct of the case, and as a basis for that sort of cerebration I would say that the effects of brain injuries are twofold: (a) infection, and (b) compression, and that the patient is either incapacitated from one of these two things or both.

It is well in our practical experience to consider how compression may be brought about. It may be the result of edema of the brain, or it may be brought about by some local pressure, such as a blood clot or depressed fragment of bone. In other words, compression or pressure on the brain is either local or general, and in either event the decision necessary for us to make is: is this a general compression due to increase in size of the brain, or is it pressure exerted in some special circumscribed local area? In either case the treatment is the same.

We all know that infection will occur with greater certainty and with more regularity in the presence of pressure. Any fliud in the body or any soft substance that becomes infected is less likely to survive infection where pressure is present than where relaxation is present, and the same line of logic ought to apply to brain injuries. We get this general compression by disturbances that are caused when the injury is sustained. It may be molecular upset or molecular disturbance of the brain cells that causes them to pour out more secretion or cause secretions in the coverings of the brain to become morbid in character and increased in quantity. it may be caused by punctate hemorrhage, or it may be caused by massive hemorrhage, one can strain his imagination to death visualizing different ways in which general compression may occur. However, general compression requires relief just as much as does local pressure, because of the fact that it will disintegrate the brain substance, it will suspend brain function, besides it renders the individual more susceptible to the various infections, encephalitis, meningitis and the things that kill the patient.

Bearing these factors in mind our judgment should be exercised in deciding whether there is a sufficient degree of this kind of pressure to cause serious interference with the functions of the brain. If we think there is, then our duty is perfectly plain, it is to relieve the pressure and in that way lessen the chances of infection. I do not mean infection in the strict sense, but disturbances and effects that may come from infection. We may have infection and yet the individual has a sufficient degree of vital resistance to overcome it, but if in our judgment the pressure is serious it is our duty to relieve it. It now becomes a question of the surgical removal of a blood clot by making a cortical flap or the removal of depressed bone. That is so perfectly obvious that it is not worthy of discussion.

In my opinion the reason basal fractures are so frequently fatal is because they communicate with natural cavities of the body that are fruitful sources of infection. Following infection pressure occurs on portions of the brain which under these circumstances becomes very early fatal to the individual. ,

In reference to the question of operation: There are operations and operations, but since I have adopted the plan of performing the osteoplastic flap procedure, my luck has changed and my results have been very much improved. An osteoplastic flap can be elevated with very little difficulty, and if carefully done there is no injury to the patient, the involved field is exposed to view, and whatever seems necessary can be quickly accomplished. Of course the location of the operation depends on the character of the injury and on the symptoms that the patient presents, but in nearly every case an osteoplastic flap elevated over the silent area of the brain will fulfill the indications. Then as an auxiliary contributing to the success of the procedure, slip a rubber drain under the dura emerging at the most dependent angle of the wound. This allows the escape of morbid fluids. Under this plan of management patients do better than by any other method of treatment.

Curran Pope: Dr. Moren has presented to us not only a very timely but a most excellent paper. It has been widely discussed from every angle except the one for which he wrote it, that is the prognosis of head injuries.

The presentation of a case of head injury, be it slight or severe, is well worthy of care and caution at the hands of anyone. That is the first axiom I would present. The second is that we practically know nothing of just how trauma effects the skull and brain, per se, and further we have no absolute way of understanding how trauma may affect that particular individual him or herself. Third, we cannot be absolutely too cautious about what we say or what we prognosticate in any head injury slight or serious. Fourth and lastly, most of the prognosticating has been done on the basis of the subsequent condition rather than at the time of the injury itself. In other words, it is one of the most difficult things I think in surgery and in neurology to prognosticate anything except the possibility of life or death in a head injury of any degree.

Personally I have long ago gotten away from the idea of concussion. I believe that in these cases we have to deal with minute lacerations, minute punctate hemorrhages, minute edemas. This is more than likely borne out by the many cases of injury from contre coup that have been reported. If the injury is of sufficient strength to break the skull on the opposite side, it is likely also to rupture some of the finer and more delicate structures of the brain itself or to injure some of the minute blood vessels.

We neurologists probably are better able to check our brother surgeons on some of the lesser injuries of the skull where the patients are dismissed as being all right. They are from a surgical standpoint admittedly. I have under observation now a patient who was dismissed a year ago. He has now developed epilepsy. One cannot draw a distinction and say, for instance, that because a man is seeking compensation that the injury should or should not entitle him to it; or if he is not seeking compensation that he will be disabled only thus and so. In prognosticating we must take into consideration the occupation of the individual. Take a high priced mechanic working over a machine. Is it not likely that an attack of even petit mal would mean his death if caught in the machinery? The same thing is true in many other occupations. In prognosticating we must stop and figure on various things in the consideration of the possibility of post-traumatic complications.

In my experience post-traumatic headache is most common. I see many cases of what I call "cerebral sensitization." Patients who are said to be perfectly well and free from headache will often tell you, without any reason for deception, that when certain things happen, when the weather changes, when they get toxic, are costive or mentally strained, their "old headache" returns. In other words, here is a center of lessened resistance, a brain so sensitized by injury, that the patient will have trouble all the rest of his life. There is a place on the upper part of my fibula where I was injured by being thrown from a horse when I was "cow-boying" out west. I can predict weather changes from the sensation there, and yet there is seemingly nothing wrong.

I am always cautious in stating that these cases will entirely recover and be free from symptoms. I have too often seen predisposition to suffering and to nervous manifestations after a brain injury to venture more than a tentative prognostication.

L. Wallace Frank: I have enjoyed the paper and discussion immensely. There are two or three points I would like to emphasize. First, the temperature: This is probably the easiest of all the prognostic signs to determine and is of the greatest value. As stated by Dr. Moren, patients having an early and steadily increasing elevation of temperature usually go on to fatal issue. We have seen temperature elevation of 108° and 109°F., following cranial traumatism. Patients whose temperature elevation is moderate—101° to 102°F.—may recover, but as a rule the course is stormy. Early rise of temperature indicates lesion, actual injury, or hemorrhage involving the medulla and floor of the fourth ventricle, the location of the vital centers, and fatality is the general rule.

The depth of consciousness: This likewise is a valuable prognostic sign. Patients who can be easily aroused, though later lapsing into unconsciousness. have a much greater chance of recovery than those who cannot be aroused. In the city hospital we have had several cases in which the patients were unconscious for ten to fourteen days. who could be aroused, and who eventually made good recoveries.

Another feature that we would like to present in this discussion is that it has been our observation that in severe cranial injuries where bleeding from the ears and nose occurs the outlook seems more favorable. It is true that infection may and does extend from the nose and ears to the cranial cavity, yet in our experience we have seen but one such case. This girl had a fracture through the anterior fossa and developed symptoms of meningitis about a month after the injury, and autopsy showed that the infection had extended along the fracture line which involved the basal centers. In cases where bleeding occurs from the ears and nose we think the patients 'decompress' themselves, so to speak. If there ever was an argument for decompression it is the fact that, in our experience, individuals with bleeding from the ears and nose do better as a rule than those who sustain cranial injuries of approximately the same severity yet do not have such bleeding.

Some weeks ago we heard a paper relative to the treatment of brain injuries. In this the statement was made that the mortality in their last series of fractures of the skull, 231 cases, had been reduced from 50 per cent to 5 per cent by the use of lumbar puncture and the intravenous injection of hypertonic solutions. To our mind such figures are of little value as there were included in their series patients in whom no brain injury or lesion was demonstrable. Should such cases be excluded we seriously doubt if the mortality has been reduced more than 5 per cent or 10 per cent, especially if patients dying within an hour after admission to the hospital are included.

We believe that by the use of lumbar puncture, and especially repeated lumbar puncture, and the withdrawal of the fluid when accurate estimations of the pressure can be made, is of inestimable value in the treatment of cranial injuries with brain involvement. Furthermore, it has been sufficiently demonstrated that the intravenous injection of hypertonic solutions does lower the pressure within the cranial cavity. Such injections are of great value in the treatment of acute brain injuries. We would suggest the use of glucose solution, for in the presence of a diseased kidney the injection of a large amount of salt might prove disastrous.

In considering the outlook in brain injuries there are two aspects to be considered: first the immediate result, life or death, and second the resulting mental state. In the treatment of the acute case we believe in lumbar puncture and the intravenous injection of glucose solution, and it is our custom to use 50 per cent glucose. Should the patient remain unconscious forty-eight to seventy-two hours, we think such treatment should be reinforced by mechanical reduction of intracranial pressure by decompression. We are of the opinion that the late results of cranial injuries, such as epilepsy, headaches, etc., are due to prolonged intracranial pressure and that early decompression will tend to prevent such sequelæ. That such an operation is of value is well illustrated by the following cases: Two patients were admitted at approximately the same time and suffering with cranial injuries of about the same severity. The first was operated upon and a subtemporal decompression done. The second was not operated upon. At the end of ten days the former was well, the latter a mental case and confined to the psychopathic ward.

Decompression operation in traumatic head cases has fallen into disrepute chiefly because of ill-advised operations. Decompression done at the wrong time can only result in fatality. In the early stages when shock is profound such an operation should not be considered. In the terminal phase after the basal centers are exhausted as a result of prolonged intracranial pressure, decompression is useless. The time to consider operative intervention is after the primary shock is overcome, at which time operation may be of great benefit and by its effect prevent the prolonged pressure which may result in death or such serious sequelæ.

In conclusion we would say that in the treatment of acute brain injuries, lumbar puncture and the intravenous injection of hypertonic glucose is of great value and combined with the judicious us of decompression operation offers the patient the greatest possibility of a return to health and usefulness.

John K. Freeman: As I understand it the title of Dr. Moren's paper was the prognosis of cranio-cerebral injuries. Those who have taken part in the discussion have ignored the question of prognosis almost completely, they have merely talked about the surgical procedures they would adopt if confronted with a serious case of brain injury.

Dr. Moren in his paper told us all about what might be expected to happen in head injuries when treated expectantly and also when treated surgically. The surgeons have told us nothing about what their ultimate results have been from operative procedures. What we want to know is the final outcome in these cases based on actual clinical experience.

The essayist has given us some valuable statistical data on the prognosis of brain injuries which we may study with profit to ourselves. I do not believe we should be too hasty in recommending surgery in every case of head injury.

Frank Pirkey: I have enjoyed hearing Dr. Moren's paper and also the discussion.

The subject of brain injuries is very interesting from an opthalmological viewpoint and this point had not been discussed very much tonight. We know that in injuries to the brain, in fractures, tumors and other lesions, there results a marked increase on intracranial pressure in which we usually have certain definite changes in the eye. The most important of these is papillitis or choked disc. That is a picture with which we are all familiar. There is first an edema and swelling of the optic nerve and later engorgement and perhaps hemorrhages of the retinal vessels.

I think these signs are quite important in brain injury cases both from a diagnostic and prognostic viewpoint. We know that in such cases with an increased intracranial pressure there is an edema around the optic nerve which interferes with the venous circulation from the eye at the foramen scleræ, where the nerve enters the eye. The central vein is compressed more than the central artery so that blood keeps entering the eye while the venous channels are not sufficient to carry it off.

This causes the choked disc which we can see and gives us an indication of the amount of intracranial pressure present. Knowledge of such an indication as this may be of great value to the surgeon in handling the case. It is stated by good authorities that the prognosis for life is very poor in patients with marked choked disc who complain of severe pain. These patients are liable to die very suddenly.

The prognosis as regards sight depends upon the amount of changes in the disc and the amount of time that the pressure lasts. In most instances there is no impairment of sight in recovered cases. The permanent loss of vision may vary from a slight dimunition to total blindness. In patients with severe choked disc I believe the prognosis is generally bad as to life and bad as to eyesight if they recover.

John R. Wathen: Like the others who have spoken, I have enjoyed Dr. Moren's excellent paper. I would like to ask him one question, and that is the prognostic importance of the duration of unconsciousness in a person who has sustained serious brain injury. I am especially interested in the effect on the mental condition of the patient afterward. The late John B. Murphy made the statement several years ago that if he remained unconscious for six hours or more following a brain injury he hoped he would never recover. Of course he had in mind the sequelæ which have been so graphically described by Dr. Moren.

I recall several cases of brain injury in Louisville where the patients were unconscious for many hours and recovered. One of our local surgeons had a severe head injury, and was unconscious for several hours, but finally recovered. I am aware of three or four other similar cases observed in Louisville. The mentality of the patient after most of these severe head injuries in my experience has always been affected.

Edmond D. Wells: I first want to thank Dr. Moren for his splendid paper. It is my opinion that the question of dilated pupil is of no diagnostic value whatever in brain injuries. In practically all cases of injury to the head in which we have inequality of the pupils, this phenomenon is due to disturbance of the cervical sympathetic nerve and not to increased intracranial pressure. This opinion is confirmed by several competent authorities.

Another point is the question of choked disc. I do not agree with one of the previous speakers about this. Quite frequently patients are brought in unconscious and remain so for many hours. Among these I never saw one with choked disc at time of admittance to hospital. Following head injuries very rarely does choked disc develop under twenty-four hours and then it is gradual. I have seen many patients with choked disc after twenty-four hours had elapsed following head injury.

The main point I want to make is that inequality of the pupils in head injuries is not an indication of brain damage but is practically always due to interference with the cervical sympathetic nerve.

R. Glen Spurling: As has been indicated by one of the other speakers, the discussion has strayed considerably from the original subject of the essayist. Since, however, some conflicting statements regarding the immediate treatment of fractured skulls have been made, I feel called upon to defend the so-called "conservative treatment of these cases." Most of the men whom I have known who defend the radical treatment of cranial injuries usually regard the conservative treatment more in the light of expectant treatment.

As a matter of fact, in my opinion, conservative treatment when properly applied is far more intensive than the so-called radical treatment. By conservative treatment, I mean the employment of methods which have as their objective the prevention and the reduction of increased intracranial pressure. These measures are instituted on the basis of a definite diagnosis before, if possible, complications have arisen.

We have two well known methods of combating and preventing increased intracranial pressure: (1) lumbar puncture. (2) Administration of hypertonic solutions. The first method is the least important of the two from the standpoint of reducing pressure. While it is true that withdrawing fluid from the lumbar subarachnoid space does reduce the pressure in the cranium, yet that is not, I feel, the main object of this procedure. As you are all aware, blood is poorly tolerated by the meninges. In fact, we constantly see irritative meningeal symptoms from blood in the cerebro-spinal fluid, which are almost as alarming as in suppurative meningitis. By repeated lumbar puncture, blood is gradually withdrawn, and the meningeal symptoms rapidly subside.

The second method has been proven experimentally and clinically to be efficacious. Since the pioneer work of Weed and McKibbon, we have come more and more to depend upon hypertonic solutions for the reduction of increased intracranial pressure. These solutions are generally administered by one of two methods: the gastro intestinal tract and into the blood stream. Saturated magnesium sulphate solution by mouth or by rectum undoubtedly reduces the intracranial tension. This is slow in its action, however, and cannot be relied upon in an emergency.

The administration of hypertonic sodium chloride of 50 per cent glucose solutions into the blood stream produces a prompt reduction of the intracranial pressure. In this clinic we have come to use 50% glucose solution conclusively for several reasons, among the most important being that the pressure is reduced for a longer period of time when this substance is used and is better tolerated by the patient.

This, in brief, is an outline of what we mean by conservative treatment. Our only indications for operation on a fractured skull are: (1) depressed fracture; (2) well localized focal symptoms. That this method of treatment has been satisfactory is evidenced by the fact that during the past two years at the Louisville City Hospital, the mortality from fractured skulls has decreased about 15 per cent.

Walter Dean: No one has mentioned the ear in connection with skull fracture. If a fracture of the base extends through a healthy middle ear, the hand should be withheld absolutely. Sterile cotton should be placed lightly in the outer ear and that is all. Any attempt to cleanse or even examine the ear may infect the injured dura through the fracture. If a fracture extends through a suppurating middle ear judgment must be exercised. Masterly inactivity should be tried, but if beginning meningitis is suspected the mastoid should be widely operated, exposing an extensive amount of dura contingous to the fracture. These same procedures are just as true of the paranasal sinuses. We know that fractures into the ears and sinuses are potentially dangerous even years after the patients have made good recoveries, because skull fractures close by membranous union and not by bone. An empyema following influenza, etc., may find its line of least resistance through this weakened bone and end in suppurative meningitis.

John J. Moren (in closing): I wish to thank the gentlemen for their liberal discussion. In regard to the question raised by Dr. Hendon about the mortality: The statistics quoted in my paper show that more of the patients operated upon died than those not operated upon, but this is no reflection on surgery by any means. I intended to leave that impression if I did not say it in my paper.

In traumatic brain injuries I believe there is non-absorption of fluid not an increase in the secretion of fluid. If the fluid is not absorbed there is an increase in intracranial pressure. If the dura is allowed to remain closed pressure is increased to the point where compression occurs thus increasing the intracranial signs. If there is edema lumbar puncture is a dangerous proposition, then it becomes a question of decompression or some other operation.

As to choked disc and blindness: The statement concerning this in the paper was made by Carpenter, it was not original with me, but total blindness has not been observed in his experience. However, it is quite natural to assume if hemorrhage has occurred in the occipital lobe and destroyed the cortical centers the patient is apt to have some defects in vision. It is remarkable sometimes how much vision returns after serious brain injuries. Our war experience shows good results and in many cases, the return of vision was practically complete.

Dr. Wathen raises the question about some of the after-effects of brain injuries. I see all kinds of cases. I am still a believer in concussion as I am firmly convinced there is such a thing. We see evidence of this in individuals who have many subjective symptoms from a slight fall or blow on the head, representing the so-called traumatic neurosis. A man who has concussion of the brain becomes unconscious, he suffers from amnesia, he has no recollection of what occurred at the time of the accident, and he later has various nervous manifestations representing what someone has described as post-traumatic constitution. His memory is defective, he is intolerant to alcohol and cannot do many of the things he formerly did. He is defective in some way or another. These are the results of cerebral concussion. These manifestations may continue for many years, and in some cases the personality of the individual has changed completely. As to the basis of that I have no knowledge. Examination will show that there are no physical signs. It becomes a question of change in the mental make-up and personality of the individual.

As to pupillary changes: I cannot agree with what Dr. Wells has said. Macewen of England, an old-time brain surgeon, described many years ago in a very minute way the pupillary changes accompanying brain injuries. He said a dilated pupil on one side indicated damage to the brain on the corresponding side. Da Costa of Philadelphia makes the same statement. Of course if the patient also has an injury on the opposite side, then the corresponding pupil would be dilated. All the authorities consulted in preparing my review of the subject state that a dilated pupil is an unfavorable sign. They look upon it as a very serious proposition.

Bacteriostatic Action of Dyes on Streptococcus Viridans. Of the forty-one dyes used by Norton and Davis in their experiments only sixteen showed bacteriostatic action in dilutions of 1:1,000 or greater. Of the sixteen dyes which showed bacteriostasis, eight belonged to the triphenylmethane group and six to the diphenylamines. Of the two remaining, one was an azo and the other a diazo compound. Of the eight triphenylmethanes, six were triamino compounds and two were diamino compounds. There was no difference between the action of the dyes on the strains of Streptococcus viridans and those of the pneumococci. A survey of the chemical structures of these dyes shows that, with one exception, all contained three benzol rings, either attached to a single carbon atom as in triphenlymethane, or conected as in anthracene. In some cases, a ring carbon atom is substituted by nitrogen. In addition to the three benzol rings, all these active dyes contain two or more amino groups. The hydrogen atoms in these groups were all substituted with alkyl radicals in those dyes showing the greatest inhibitory action.

THYROIDITIS.*

By W. O. Johnson, M. D., Louisville.

Thyroiditis is the term used to designate inflammations of the thyroid gland arising in glands that have been previously apparently normal, while the term "strumitis" is applied to inflammations in glands previously enlarged. It is in 10% of this latter group that suppuration occurs, when the gland becomes infected.

When we consider the type of ductless gland, its iodine content, blood and lymph supply we would expect the gland to be resistant to infections, and this is true in many instances. Except for the rare examples of traumatic inoculation, most of the inflammations of the gland are blood borne infections, arising from foci elsewhere and lodging in the thyroid, though a few of the pharangeal infections may be the result of lymphatic extension. As early as 1878 Kocher pointed out that acute thyroiditis was due to a metastasis of the infectious agents from foci elsewhere in the organism, and this has been substantiated by bacterial studies.

The most frequent diseases complicated by thyroiditis, in their relative position of importance are, tonsillitis, peritonsillar abscess, alveolar abscess, influenza, erysipelas, parotitis, acute articular rheumatism, diphtheria, measles, scarlet fever, typhoid fever, and pharyngitis, but as yet none of these groups produce suppuration in previously normal glands. The glands prone to suppuration are adenomatous goitres, which are not considered in this paper.

The pathology in these cases may vary from the acute infectious to the chronic productive forms of thyroiditis. In the acute forms the findings are similar to infections in other parts of the body, namely, dilatation of capillaries, hemorrhages, leucocytic infiltration, and diminished colloid content. This condition may gradually subside, and be spontaneously cured. On the other hand a chronic productive thyroiditis or so called "Reidel's struma" may be formed with a diffuse round cell infiltration, formation of large lymph follicles, hyperplasia of fibrous tissue, and diminished blood supply, with or without an extension of the process outside of capsule of the gland and the resulting changes in periglandular tissue. The exact etiology and characteristics of this latter type are not, as yet, clearly defined.

With these pathological findings the usual symptoms are a sudden onset, associated or not associated with some of the afore mentioned diseases, pain in neck, referred to cervical region, difficulty in breathing, hacking persistent cough, pressure and fullness in the neck with a constant desire to swallow and increased salivation, and hoarseness, which, however, rarely reaches aphonia. The head is usually bent forward and to the side of the lesion, the neck is swollen, red and tender with rise in temperature; these findings are nearly always associated with symptoms of hyperthyroidism, which in simple cases subside spontaneously.

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*Read before the Jefferson County Medical Society.

In a review of the reports of the Hazenbuch, Mayo, Crile, and Lahey's Clinics, we find that thyroiditis occurs in less than .5% of their cases. This comparative rarity leads me to report two distinct cases of this disease. Through the courtesy of Dr. C. W. Dowden of Louisville, Ky. I was permitted to see the following case:

CASE REPORT.

Mrs. H. S. R., aged 38, married.

Chief complaint: Nervousness, tachycardia, loss of weight.

Family history: Father dead, heart trouble, apoplexy. Mother dead, cancer of stomach. Two brothers dead, infancy and rheumatism. Two brothers and one sister, living and well.

Past history: Three pregnancies, two full term, on miscarriage. Menstrual history regular, negative. Mastoid operation 1925.

Present illness: Has not felt well since mastoid operation. In May, 1927, developed soreness of the thyroid gland over night. First on left side, then on right side of neck, this is aggravated by sneezing, swallowing, or coughing, and feels like a small abscess in neck. This is associated with fast and tumultuous heart action, marked nervousness, loss of 15 pounds in weight, perspires freely, marked general weakness, especially on going up stairs, weakness of voice and unable to talk aloud at times. Appetite good, no distress after meals. Depressed. Has tremors and shaky feeling which is growing worse, has to rest a great deal.

Physical examination: Normally developed, well nourished, skin moist. Spine, negative. No enlargement of cervical glands. Thyroid gland is definitely enlarged, exquisitely tender, at one point on left side, covering area about the size of a quarter, unable to determine fluctuation because of tenderness.

Head: Eyes, negative; throat, negative; tonsils not visible; teeth in excellent condition, otherwise negative.

Heart: Rate 106, not enlarged, no irregularity, impulse seen in large vessels of neck. B. P. 136-92. Reflexes: slightly exaggerated, marked tremor of fingers.

Laboratory: Basal metabolism plus 56.2%. Urine, clear, straw, neutral reaction, 1010, heavy trace albumin, sugar 0, acetone 0, hyaline casts rare, two plus epithelia occasional pus cells, 1 blood cell per H.P.F.

Blood-Hemoglobin-Sahli 70%; R. B. C. 4,060,000; W.B.C. 533; slight achromiallymphocytes 30; large mon. and trans. 1—; polynuclears and neutrophiles 54, eosinophiles 2, basophiles 3.

Patient was treated by Dr. Dowden in Baptist Hospital. Given absolute rest in bed, forced fluids, Lugol's sol. M. V. T. I. D. Ice cap over the thyroid gland, and sedatives. On August 17th, B. M. R. +20.7 subjective symptoms disappeared except for mild degree of nervousness. August 24th +12.5% and September 15th +3.2% and October 19th +1.05% with complete recovery of the individual. No residue left in gland and general condition apparently well.

This case is typical of a simple acute form which usually runs a course of 6 to 10 days with active symptoms, and then gradually subsides, having a spontaneous recovery in 60 to 70% of the cases.

A point of interest in this case is the lapse of time between the apparent source of trouble which we inferred to arise from mastoiditis two years before, and the present attack of thyroiditis, but the recovery picture is very characteristic.

A sign which was first brought out by Lahey was present in the early part of the disease in this case. The affected area was protected by holding the head to that side, thereby relaxing the inflamed muscles. Cases such as this rarely need surgical intervention, except in instances of abscess formation which occurs only in adenomatous goitres.

However, in 20-30% of the cases of thyroiditis the condition does not disappear spontaneously, but progresses into a chronic form, and in these conditions the picture is changed.

This is exemplified by the following case:

Mr. J. W. L., aged 58, widower, salesman.

Chief complaint: Swelling of left side of neck.

Family history: Father dead, 76, gangrene of foot. Mother dead. Brother dead, tuberculosis, otherwise negative. No goitres.

Past history: Two children, one dead, 30, tuberculosis. One child living and well. No goitres. No operations. Had tuberculosis in early life.

Present illness: For past three years had trouble with teeth, loose and painful at times, two and a half years ago had gums lanced twice, following this had 15 teeth pulled, without any reaction. No trouble until three months ago, began suddenly, with pain in left lower jaw. Two months ago had 7 teeth pulled, in 36 hours left side of face, eye, and neck were swollen, quite painful, difficulty in breathing and swallowing. All of which were relieved by hot applications and in three days the mass on right side of neck and swelling of left side of face had gone, but mass on left side has remained to the present time. During the period of acute illness did not have any nervousness, palpitation, weakness, loss of weight and has never had any similar trouble. Patient, however, is gaining in weight and has a tendency of feeling cold, has never noticed any changes in skin. Has only had local applications of iodine, no other symptoms of note.

Physical examination: Well developed, obese man of 58 years. Skin: Face had slightly florid complexion. Patient has not noticed any change. Is suggestive of early hypothyroidism, slightly thickened, otherwise clear. Does not perspire easily.

Head: Hair scant, negative. Ears: Nose: Not remarkable. Eyes: slight puffiness, Areus senilis, pupils react slowly.

Mouth: All teeth absent, gums well shrunken, one point on lower incisor not completely healed.

Neck: Skin loose, hangs in folds, situated on the left side of the neck is an adenoma size of a lemon, well circumscribed and can be easily palpated, quite hard and this is fixed to the trachea by a hard band-like mass which corresponds to the isthmus, this extends over to the right side of the neck which shows a small but palpable firm lobe, all are adherent to surrounding structures and not tender or movable, few posterior cervical glands palpable, no tenderness.

Chest: Costal angle broad, expansion fair. Heart: B. P. 160-88.76. Sounds clear. Abdomen: Thick walled, medium sized, no masses or tenderness.

Extremities: No edema, reflexes O. K. Impression: Chronic thyroiditis.

The interesting points in this case are (1) the association of alveolar abscess with the production of thyroiditis. We know that this type of thyroiditis has a tendency to chronicity. (2) The presence of acute symptoms and involvement of the entire gland, with no subjective symptoms of thyrotoxicosis, together with the spontaneous recovery of the right side of the neck, and beginning chronicity in the left side, with progressive enlargement of the gland. (3) The absence of hypothyroidism may be explained by the functioning of the right lobe of the gland, and also by the fact that not sufficient time had elapsed to produce it, but the chilly feeling, pasty skin and gain in weight are early indications of beginning hypothyroidism, the presence of fullness, feeling of pressure and constriction, with the stony hardness and the enlargement of the left lobe of the thyroid without any history of previous goitre, and the fixation of the lobe to the surrounding tissue, leads one to suspect a chronic, productive thyroiditis, such as described by Reidel in 1876.

These chronic cases may have to be operated upon because of the constant and persistent pressure sensation, which may lead to hoarseness and even aphonia. But whether operated upon or not, the condition in majority of cases leads to hypothyroidism, and is only satisfactorily relieved by long continued use of thyroid extract.

The iodides in these cases seem to aggravate a smouldering hyperthyroidism and as there is not sufficient gland substance remaining to be stimulated, in most of these chronic cases the use of iodine is not satisfactory.

A consideration of the surgical aspect of thyroiditis may be classified as follows: In acute cases only incision and drainage of abscesses are indicated, these abscesses occur in only 10% of the cases of strumitis, and are practically never associated with acute cases of thyroiditis.

If the process does not subside following drainage, the condition is best handled by allowing the infectious process to wait six months, unless it is progressing, for a great majority of cases in this period of time correct themselves. Most important, a local immunity is developed which is a barrier to mediastinitis, which usually "flares up" after such operations and has a high mortality rate.

In the chronic cases one does not have to deal with a progressive hyperthyroidism, for the cases resolve themselves, as far as toxicity is concerned, into either an adjustment or a gradual destruction of the thyroid substance, resulting in production of a hypothyroidism. In later stages, where there are persistent foci of infection, the operative procedure is more one of eliminating the local focus of infection which is retained in an encapsulated area, and preventing any further destruction by the continuance of its process, rather than a correction of the degree of hyperthyroidism.

In the cases of chronic ligneous thyroiditis the case usually resolves itself into a state of hypothyroidism. Whether operated upon or not, the operation is indicated to relieve the subjective symptoms resulting from the adhesions and pressure, rather than any correction of toxicity. By examination of the pathological specimens in these cases, one is also sure that the condition is non-malignant, for this pathological examination is the only method of differentiating this chronic ligneous thyroid from malignancy.

SUMMARY.

These cases present, rather typically, two extremes in the picture of thyroiditis, and are presented in the hope that more cases may be reported so as to develop a clearer picture of the beginnings of chronic thyroiditis, and a more satisfactory mode of treatment in this group of cases.

DISCUSSION.

C. W. Dowden: My knowledge of the subject of thyroiditis is limited to my experience in the examination and treatment of four cases, including the one seen with Dr. Johnson. Three of them were unquestionably of the simple type, but the other may have been a strumitis, since it occurred in an elderly woman.

The diagnosis in each case was quite simple and was based upon three cardinal symptoms: (a) Swelling of the gland, (b) exquisite tenderness, and (c) dysphagia, all developing abruptly. I say three cardinal symptoms, because I believe these three symptoms are quite characteristic of acute thyroiditis. Other symptoms were those to be expected in connection with hyperthyroidism plus those of the primary infection.

In three of these, there was an acute tonsillitis, which developed a week previously and the case seen with Dr. Johnson followed bilateral mastoidectomy. All four patients had fever. In two cases, tenderness was so exquisite that the patients could not allow the slightest pressure on the neck. Two patients had eye symptoms, the other two did not. All of them had high basal metabolic rates, ranging from pus 25 to plus 66, with loss of weight. The pulse was above 100, in two of them 140. All responded promptly to rest, application of the ice bag and the administration of Lugol's solution. The basal metabolic rate returned to normal (in two below normal), the pulse returned to 80 or below and the weight was restored to normal in all.

While no predisposing cause for localizing in the thyroid gland is recognized, yet there was one very interesting feature in the three cases coming under my personal observation, viz., two of the patients were young women, school teachers in adjoining rooms of the same school, who developed the trouble within three months of each other. Later, one of these patients brought her mother to see me with exactly the same condition—exquisite tenderness of the thyroid gland, fever and high metabolic rate. There is a type, however, that is more difficult to recognize and one which I believe is frequently overlooked by both physician and the patient. I refer to cases of long duration with hard diffuse enlargement of the gland, with chronic low grade inflammatory reaction, but without fever. They possibly represent those acute cases that did not regress to normal, and it is believed by some that such inflammations may lead to myxedema or thyrotoxicosis. At any rate, we do know that in the true inflammatory type, the pathology is the same up to a certain point. They are characterized, first of all, by leucocyte infiltration, desquamation of epithelium and decrease of colloid. If this is continued long enough, it is naturally followed by connective tissue, overgrowth and organization. Purulent thyroiditis is to be thought of simply as an extension of the primary inflammation, with necrosis, liquefaction of cells and consequent formation of abscess cavities which may extend beyond the capsule into neighboring tissues.

John R. Wathen: This is an interesting subject Dr. Johnson has introduced. In many years of experience in goiter work, I have encountered a very small percentage of cases of acute thyroiditis. I can recall only ten or twelve acute cases in my experience with many operations extending over a period of quite a number of years.

There seems to be some difference of opinion in regard to just what is meant by acute thyroiditis. My ideas on the subject are in accord with those of European authorities, such as Kocher of Berne, and others, that acute thyroiditis is always an infective process and is due to an infective focus elsewhere in the body. This does not include acute exacerbations of exophthalmic goitre.

In my early goiter work, a woman aged 65 years was referred to me with a thyroid tumor the size of a grapefruit which had developed suddenly. The skin over the gland was intensely red, and she had one symptom which all of my patients with acute thyroiditis have presented,—and this was not mentioned by the essayist or the gentleman who preceded me in the discussion,—she had intense dyspnea due to pressure of the large cystic tumor. In this case an incision was made over the most prominent part of the tumor under local anesthesia and about a quart of pus evacuation. The cavity was swabbed with carbolic acid and the patient made a complete recovery.

Another patient, a man of 50, foreman for the United States Coal & Coke Company, was brought to me from Lynch, Kentucky, where they have a large plant. He was one of the largest men I have ever seen, being about seven feet in height and weighing about 300 pounds. Like the woman just mentioned, he could hardly breathe, and had been given oxygen on the way to Louisville. When I saw him he had a thyroid tumor the size of a small grapefruit and the overlying skin was very red. An incision was made over the tumor under local anesthesia and about a pint of pus evacuated followed by satisfactory recovery. In neither of these cases was there a history of infected teeth, tonsils, or any other structure of the body. The basal metabolic rate was not estimated but was probably high.

I have seen three cases of acute thyroiditis following trauma from being choked. One, a little girl, was recently referred to me by Dr. Kirk. She had been choked by another child and when I saw her the neck was swollen and bruised. Cold applications and palliative measures were advised. Ten days later suppuration occurred and pus was discharged through a spontaneous opening.

There are other causes of thyroiditis which are also infectious in type but the cases are not quite so acute. Syphilis of the thyroid gland is rather common. In such cases it is unilateral and the sternocleidomastoid muscle is also involved. Von Bergman's System of Surgery quotes a number of cases of this kind, in fact contains about the best history of syphilis of the thyroid we have. In these cases the diagnosis is not difficult, the patient usually gives a four-plus Wassermann, and recovery follows antisyphilitic treatment.

Tuberculosis is quite often associated with enlargement of the thyroid gland. Sometimes in advanced tuberculosis there is sudden enlargement of the thyroid. These cases can hardly be called acute as the condition presented is subacute.

Sudden exacerbations of exophthalmic goiter and toxic adenoma of the thyroid also present acute symptoms. In acute thyroiditis, however, the pathology is always an infection existing somewhere in the body.

Virgil E. Simpson: Acute thyroiditis is always interesting because of its rarity. It is certainly very unusual for a dozen or more cases to be encountered in one man's professional career. There is probably as much contention regarding the classification and nomenclature of diseases of the thyroid as any other portion of the human anatomy. When compared with the frequency of other thyroid lesions, the occurrence of acute thyroiditis is extremely rare. I have understood and still understand that it is always an acute infectious process; it is rarely if ever a primary affection; it is practically always a condition that develops in consequence of an infective process involving some other portion of the body.

The cases of acute thyroiditis I have seen,—and I can recall only three,—were those developing in the course of general bacteremia. One developed in the course of influenza, one in what we denominated as an ordinary "grippal" affection, in which the patient developed an acute process in an old adenomatous lesion. In these cases the thyroid gland rapidly enlarged, the patients had a temperature of about 104°F., the course being typically acute with subsidence in ten days to normal conditions.

Thyroiditis is invariably accompanied by tenderness and pain. The thyroid gland is inclosed in a capsule, just as is the parotid gland, and the swelling soon reaches its maximum of capacity with regard to confinement, and pain is the logical result. The appearance of the gland itself is rather characteristic. I recall another case that developed in the course of what was later determined to be acute bacteremia, in which an eye, ear, nose and throat man had been called by the attending physician with the idea that it might be Ludwig's angina. There should not have been much difficulty in determining that this was an acute inflammatory process of the thyroid. The patient died rather promptly.

I have done no basal metabolic work in acute thyroiditis. The patients I have seen have been in serious condition, too ill to be annoyed with basal metabolic studies.

I do not consider as true thyroiditis some of the groups presented by the essayist and mentioned by the previous speaker, that is conditions that are tuberculous or luetic in nature. If the thyroid becomes involved in a general syphilitic process it is not acute thyroiditis, it is syphilis of the thyroid. Tuberculosis of the thyroid is never found as a primary process, it is always secondary to tuberculosis elsewhere, and if the thyroid becomes enlarged and tender it is not acute thyroiditis, it is tuberculosis of the thyroid.

Greater difficulties are encountered when we come to study the question of chronic thyroiditis. We are told of so many conditions accompanied by a low grade chronic process that it is difficult to draw any line on whether chronic thyroiditis or some other type of affection is responsible for the changes present. I would be inclined to discard entirely the term chronic thyroiditis or confine its meaning within very narrow limits. Increase in lymphatic material or hyperplasia is no evidence of chronic thyroiditis, because that is a process which all of these glands may undergo. In hyperplasia there is merely an increase in the colloids deposited with formation of hyperplastic areas, then the condition may subside and go through the same process again, each time the gland becoming larger and firmer in consistency; but that is not chronic thyroiditis in my opinion.

Cases of acute thyroiditis that become suppurative are rather rare. In the majority of these cases there is a return to normal provided the patients live. However, the most of them soon die because the thyroid suppuration is only a part of some general process deeply situated and prompt exitus is the result.

The essayist in my opinion did not intend to give a detailed description of such changes as may occur in adenomatous thyroid enlargements or other processes which may take place and are little understood from the standpoint of causation, nor did he go into details concerning exophthalmic goiter which as we know may be rapid in onset. This is not acute thyroiditis, it is a separate and distinct condition, set apart from all the other groups of diseases of the thyroid; however, rapid the appearance of the exophthalmic manifestations may be and however striking may be the symptoms which are present, it is not a case of acute thyroiditis. I did not understand the esayist to include that as a part of the condition which he has presented. Such cases might be confused with acute thyroiditis, but I have not seen any cases that were the result of definite infiltration of the thyroid without being the sequence of some inflammatory condition elsewhere.

I have seen no cases of acute thyroiditis following tonsillitis. If one may judge from the number of tonsils removed daily and conclude they are being removed only where removal was justifiable, certainly acute thyroiditis must be considered exceptionally rare following acute or chronic tonsillitis or post-tonsillar abscess.

This is an interesting problem and I am glad Dr. Johnson presented it for consideration because of its rarity and because of the necessity of care in the differential diagnosis. Particularly in the chronic type and often in the acute type one must be exceedingly chary about determining that this is acute thyroiditis, an inflammatory process, which I believe is always the result of invasion of pathogenic micro-organisms such as the streptococcus, staphylococcus, etc. from a definite focus of infection elsewhere in the body.

Alexander Nettleroth: If I may be permitted I would like to briefly mention two cases, one of acute thyroiditis, and one of hyperthyroidism, which may be of some interest in connection with Dr. Johnson's paper. A woman between fifty and sixty years of age was brought to my office by her daughter. The patient had a thyroid gland about half the size of an orange. She had already consulted several other physicians all of whom had advised thyroidectomy.

Anamnestic inquiry developed the fact that she had always enjoyed good health, with no evidence of thyroid enlargement, until three weeks before her visit. Prior to that time, however, she had an attack of acute sore throat following which she noticed some stiffness of her neck. My examination showed no evidence of hyperthyroidism. Her pulse was regular and about normal, she had no tremor of the hands and no elevation of temperature. Her thyroid gland was large and quite tender.

Based upon the physical findings she was told it would be a mistake to submit to operation. I told her to return home and make intermittent hot applications to the thyroid, prescribing hydriodic acid and an alkaline. Two weeks later the thyroid gland was normal in size and the woman had no further trouble.

A strange part of the story is that the daughter, who had brought the patient to my office, later came to see me and said she was not feeling well, she had no appetite, she was nervous and did not sleep well. I examined her at once and had no difficulty in determining that she had hyperthyroidism. She had tremor, rapid pulse, was extremely nervous, thyroid only slightly enlarged. After making the diagnosis I informed her that, on account of the gravity of her condition, I did not care to treat her, that I did not believe ice packs and other palliative measures would be of any avail, that she had hyperthyroidism and should consult a surgeon. She then consulted some doctor who advised medical and rest treatment. After five months of rest there was no improvement. Roentgenotherapy was then tried with no marked benefit. She finally consulted a local surgeon and was operated upon with perfect results. I saw her about a year afterward, she was then entirely well and had gained twenty-five pounds in weight. She said to me at that time: "Doctor, I do not understand how you knew immediately that my thyroid was the cause of my troubles when there was no enlargement." I replied that I did not know how to explain it, but I "simply had that faculty."

R. Alexander Bate: It is a great pleasure to hear a classical paper such as that presented by Dr. Johnson. The distinction between acute inflammation and the increase in tissue that characterizes the more chronic type of thyroid involvement was beautifully described. The first case particularly was very interesting and instructive, and I think the society is greatly indebted to Dr. Johnson for his classical paper. He has expressed very clearly the changes which may occur in the thyroid during the course of the inflammation. In the active stage he mentioned the hyper-function of the gland characterized by the symptoms described, increase in the basal metabolic rate, exophthalmos, tachycardia, tremors, etc., all of which are characteristic of hyperthyroidism. Following this certain atrophic changes occur modifying the structure of the gland with the supervention of hypothyroidism. Everything the esayist said was beautifully expressed and nothing was omitted. The presence of syphilis, of course, represents a different type of hyperplasia with gummata and does not belong in the class mentioned by the essayist. I think each point he made was adequately covered and emphasized as it should be.

The administration of iodine in these cases seems to have two different types of followers. Some believe iodine will produce infiltration of the gland, while others claim atrophic changes occur after the administration of iodine the gland becoming smaller in size. Personally I prefer the administration of hydrobromate of quinine and strophanthus in cases of hyperthyroid manifestations.

W. C. Johnson (in closing): I am greatly honored by the liberal discussion, and wish to thank the gentlemen for the important points they have brought out in their discussion.

There are three points that I wish to particularly emphasize: First: that thyroiditis is an inflammation in the thyroid gland, and this inflammation is nearly always secondary to some foci of infection. Second: that these inflammations occur in previously apparently normal glands, and that they may have an acute or chronic pathological picture. The prognosis of the disease is dependent upon which form it assumes. Third: Strumitis or inflammations in previously enlarged glands is more common, tends to suppurate and requires more surgical intervention to produce a cure than thyroiditis. These cases were not considered in this paper, although practically all of the cases presented in the discussion were cases of strumitis. Acute thyroiditis must be differentiated from the symptoms associated with exquisitely tender and sudden enlargement of glands in cases where large amounts of iodine have been given.

Dr. Wathen emphasized the point made in this paper that dyspnea is always present in these cases.

Acute thyroiditis is never associated with aphonia, while chronic thyroiditis is commonly associated with aphonia.

By a more complete study of such cases, we can make a definite classification of this chronic condition in future.

I again wish to thank the gentlemen for the points brought out in their liberal discussion.

A Family of Squinters. Frank H. Rodin, San Francisco, (Journal A. M. A., May 22, 1926), reports the case of a woman, aged 46, who had had fourteen children, nine o fwhom were living. Her right eye had always turned out. The eldest living six children and her husband have straight eyes. The eyes of the youngest three children turn in. These children were of normal birth and always healthy. The mother had always enjoyed good health. As far as could be ascertained there is no history of strabismus on either the maternal or the paternal side of the family.

POST-OPERATIVE PSYCHOSIS.*

By William E. Gardner, M. D., Louisville.

In a relatively small percentage of cases following surgical operations, of both major and minor magnitude, there will ensue a train of mental symptoms which may arise at any time within a period of a few days to several weeks following such operative procedures, and which have, for purposes of convenience, usually been classified under the name of post-operative psychosis.

While there is a group of these mental symptoms which may, in most instances, be considered more or less typical of the average post-operative psychosis, yet most authorities now agree that there is probably no true psychosis which develops as a distinct entity following surgical procedures, and that any of the so-called essential psychoses may make their appearance, at this time, and be considered as postoperative only in the sense that they have developed subsequent to an operation and not of necessity been dependent directly upon any surgical shock which may have preceded the appearance of the mental disturbance.

From whatever group of etiological factors such abnormal mental manifestations may arise, however, it has been our observation that the surgeon in charge of such a case usually becomes unduly concerned about the part he has played in bringing about such a picture, and at once begins to check both his preoperative and postoperative care of the patient, being more or less inclined to assume an apologetic attitude for not having been able to forestall the development of such a complicated situation. He is, of course, justified in his anxiety lest the patient not be able to get a good surgical result on account of his restless and disturbed mental state, but in the vast majority of instances there has been no fault in the surgical judgment or the technique employed which has in any way been responsible for the development of the psychosis. There are frequently many hidden factors in the personal and family histories of such patients which may have either a direct or an indirect influence in producing the mental picture which confronts us in such emergencies.

No individual is, perhaps, immune to the development of psychotic reactions following surgical procedures, but those who come from psychopathic or neuropathic stock are more likely to be unstable in their nervous and mental makeup, and for this reason will be more susceptible to the devasting influences upon their mental integrity which may come as a result of pain, anxiety or fear either preceding or immediately following surgical operations. States of toxemia, infection and exhaustion which, in many instances, are a part of the surgical disease on account of which an operation becomes necessary may be very important factors in producing many of the mental symptoms which ensue after the vitality of the patient has been temporarily depressed following major procedures. There are some things in the habits of certain individuals which undoubtedly play an important part in making them more susceptible to the development of a postoperative psychosis; and while many of these habits may in themselves be only an expression of an unstable mental and nervous makeup and not, per se, directly contributory factors, yet they have been considered of sufficient importance to warrant our mentioning at least a few of them.

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*Read before the Louisville Medico-Chirurgical Society.

The continued use of alcoholics, even in moderate quantities, or the excessive use of same at frequent intervals undoubtedly predisposes one toward the development of states of mental confusion or delirium following surgical operations. Irregular hours of work and rest; excessive mental or physical strain; over exertion in athletic games; sexual excesses; excessive use of drugs for headache, insomnia and constipation; and especially the habitual use of the derivatives of cocain and opium are all contributory factors.

Postoperative psychosis rarely ever occurs in childhood, and with the exception of dementia precox and the maniac-depressive psychoses which may follow operations in early adult life, the vast majority of cases do not occur until after the age of thirty-five, and are most likely to occur between this age and that of fifty, this being the most active period of life and one in which, with the exception of tonsillectomy and appendectomy, more major surgical procedures are undertaken than at all other periods combined. In proportion to the number of operative cases occurring after age fifty the percentage of psychoses gradually increases with the age, until it reaches its maximum in the senile cases.

Regarding the relative frequency with which various sorts of operations predispose individuals to the development of psychoses, statistics seem to indicate that they occur most frequently in those who have had operations about the face, especially the eye, and about the genitalia, rectum and sigmoid. Just why this relative frequency occurs in operations about these parts of the human anatomy, some of which are remotely connected with each other, it is difficult to say, and the writer has found nothing in the literature upon the subject which offers an adequate explanation. Since no satisfactory explanation of this phenomenon has been offered prior to this time, and believing it desirable that it should be explained, if possible, we shall hazard the opinion that it may be due to the fact that the structures about the face are directly connected with the midbrain and medullary portions of the automatic nervous system, and those about the genitalia and lower bowel are in relation with the sacral portion of this system to such an extent that the irritative influences of surgical procedures have a tendency to break up the inhibitory function of these important centers to the degree that the sympathetic nervous system becomes more or less unrestrained and the normal physiological processes of the body are upset in such a way that metabolism is disturbed, and the processes of digestion, assimilation and excretion are seriously interfered with. There being no other important centers, or relay stations of the autonomic nervous system than these three which I have mentioned, viz: the midbrain, the medullary portion and the sacral portion, may account for the fact that operations in other parts of the body are less likely to predispose the individual to the development of a postoperative psychosis.

It has been held for a number of years by the best authorities that in the toxic-exhaustive and infective-exhaustive states with mental confusion, which are not unlike those mental manifestations which we see following surgical operations, there is an accumulation of fatigue products within the brain and nervous system which accounts for the symptoms. In addition to this, and to some extent the result of it, especially in those cases of mental confusion following infections of various sorts, there is present a condition of relative acidosis, or a lowering of the carbon combining power of the blood plasma. In other words, the alkali reserve of the blood falls below the minimum normal level.

In a paper read before the American Psychiatric Association in Cincinnati last May, Dr. McIntyre of the Long View State Hospital at Cincinnati, demonstrated by graphic charts his studies upon a series of cases of toxic and infective-exhaustive psychoses, and showed that in all of these the alkali reserve of the blood was well below the normal average of 62 mg. per 100 cc., many of the cases showing not more than 30 to 40 mg. when admitted, and some even less than this. One or two or these were postoperative cases, and while I have not personally had an opportunity to study the alkali reserve of the blood in the postoperative cases that I have seen, I have no doubt that all of them, especially those with confusion and disorientation would have shown a lowered alkali reserve. We believe this to be an important observation and indicates at least one of the essential etiologic factors that go to make up the mental picture that we see in these confusional states, whether they be due to infection, toxemia and exhaustion, or, perhaps, all three combined in a postoperative psychosis.

We believe the fact that the surgeons have, for a number of years, recognized the importance of counteracting that condition commonly known as acidosis and have taken steps to prevent it, either before or immediately following operations, has been responsible for a marked reduction in the number of psychoses which now ensue as compared to that of a period of ten or more years ago.

The states of toxaemia and exhaustion which occur in individuals suffering from that large group of so-called cardio-renal diseases, many of whom show definite evidences of arterial degeneration, are important etiological factors in predisposing them toward the development of states of mental confusion following surgical procedures, as a result of which the ultimate outcome of such cases is not infrequently a source of great anxiety to the surgeon and medical attendant.

Just how much the climacteric period in women predisposes to the development of a psychosis following surgical operations we are not prepared to say, being inclined to the opinion, however, that there is nothing in the climacteric per se, in the otherwise healthy individual which might be considered of etiological significance, but it has been our observation that in the majority of cases of mental abnormality developing at this period, there is a definite paranoid trend which suggests a previous mental instability.

There is nothing characteristic in the brain pathology of many of the postoperative psychoses, except the underlying pathology of a disease which may have existed previous to the time of operation, as already indicated in our reference to the cardio-renal diseases and other conditions attended by arteriosclerosis. A similar statement could be made in reference to those cases in which syphilis, alcoholism and tuberculosis have been predisposing factors, as well as in many other disorders due to organic disease.

There are, however, certain changes which take place in the brain tissue or brain function of those cases presenting the symptoms of a confusional psychosis following surgical operations which are fairly constant and might be considered more or less typical. For this reason, we have thought it proper to discuss briefly some of these phenomena. While fatigue is said to be an intoxication of the tissues by the paralyzing products of muscular metabolism, exhaustion is regarded as a process of self-destruction of nervous tissue through its own activity, katabolism being in excess of anabolism. In other words, exhaustion is a morbid process taking place in the cerebral cortex in which the amount of consumption exceeds that of repair. Such a condition implies a deficiency of nutrient pabulum of the cortical neurons which is of intracellular origin and is called chromatoplasm. Histological examination of the brains of patients, who have died from an acute confusional psychosis, reveals disintegration of the chromatoplasm of the cortical neurons. The Nissl granules are deficient and powdery (a condition of chromatolysis). There is, also, some staining of the achromatic substance, and the nucleus may be eccentric in position, designated as achromatolysis. There is sometimes an edema of the pia-arachnoid and on microscopical examination diapedesis of leucocytes into the perivascular spaces may be found. The opinion prevails that chromotalysis is a recoverable condition, but that achromatolysis means permanent damage to the neuron because it signifies destruction of the kinetoplasm, or chromatophilic elements of the nervous tissue.

It has been held by Stoddard of England that there are certain considerations which suggest that the mechanism underlying the cardinal symptoms of the confusional psychosis is an increase of synaptic resistance more or less general throughout the nervous system, and by this he means a resistance at the last terminal branches or twigs of the neurons, the spaces between which are designated as synapses. Upon this hypothesis he has attempted to explain the symptoms of analgesia, hallucination and imperception. He calls attention to Sherrington's experiments on the scratch reflex of the dog to show the multiple stimuli will overcome synaptic resistance, and that repeated and multiple stimuli will overcome the resistance which underlies the analgesia. Also that the resistance is at the synapses and not in the neurons, the latter being no more susceptible to strong stimuli than the synapses themselves. Stoddard's original conception was that one of the elements in the mechanism of hallucination is dissociation of the peripheral neurons from the central nervous system. His more recent conclusion was that there is increased resistance at the synapses between the peripheral and more central neurons. Upon this hypothesis he undertook the experiment of using some drug which would diminish the resistance at the synapses in the so-called toxic-exhaustive psychosis. His experiments convinced him that the drug which stood preeminent for such a purpose was strychnine, and found that in several mild cases of this disorder four minims of liquor strychniæ, British Pharmacopeoa, injected subcutaneously three times daily, abolished the anesthesia and hallucinations and rendered the patient's perception perfectly clear in a most remarkable manner. In two or three cases such treatment proved to be the turning point in the patient's illness. While these experiments of Stoddard may be considered of value only so far as academic interest carries them in supporting an hypothesis regarding the mechanism of the important symptoms of the confusional psychosis, yet he seems to have, incidentally, made an important clinical observation which has been of much value in the treatment of this disorder.

Time will not permit that we undertake a detailed discussion of the symptomatology of the postoperative psychoses, inasmuch as we have already indicated that any of the essential psychoses, such as dementia precox, paranoia or the maniac-depressive psychoses may ensue following either major or minor surgical procedures, and in our discussion of this phase of the subject we shall limit our observations to some of the more important symptoms of the confusional psychosis which appears to be the most prevalent form of mental disorders arising in this connection, in the absence of those hereditary factors which would predispose one to the development of other psychoses.

Peripheral analgesia is almost invariably present during some stage of the disease, and usually persists for a period of from two to four weeks after the onset of the mental disorder. It is said to be one of the cardinal symptoms. Contraction of the visual fields has been observed in a number of cases in which sufficient cooperation on the part of the patient could be obtained. The pupils are usually widely dilated, but react to light and accommodation and there may be some nystagmoid jerking on extreme lateral deviation of the eyes. The patients usually look ill from the beginning, with a pale and muddy complexion. The tongue has a thick moist coating, which does not clear readily, and was once referred to by one of my collegues of the older school as the "cerebral tongue." The general nutrition is poor, the patients lose weight, and are frequently emaciated. The temperature is frequently subnormal and there is usually a secondary anemia of moderate degree. The pulse is usually soft, and the arterial tension is low. The pulse rate may be normal or slightly increased depending upon the degree of psychomotor restlessness. The urine is scanty and of high specific gravity, due to a deficient fluid intake and frequently contains a trace of albumin without casts or other organic constituents. The muscular power is remarkably well preserved but in those patients who are physically weak there may be some tremor of the hands. In others there are definite symptoms of hyperthyroidism which indicates an important etiological relationship.

The superficial reflexes are usually normal except in depressed cases where they may be somewhat diminished. The tendon reflexes are increased but in the absence of organic disease there is no Babinski or ankle clonus. The sphincters are usually unaffected but may appear to be involved on account of the wet and dirty habits of patients when badly confused or in stuporous states.

The mental symptoms cover a rather wide range of variety and we shall call attention to only a few of the most important of these. There is a marked disturbance of the functions of perception and recognition. In fact, an almost complete imperception may occur. If the patient be shown a picture he is unable to say what it portrays. He may not be able to understand the meaning of a more or less complex sentence. There may be perceptual or ideational inertia. If the patient be shown a series of objects, he may recognize the first one and name it correctly but give all succeeding objects the name of the first. Hallucinations are particularly characteristic of this psychosis and may involve all of the special senses. The patients see in the air moving faces, devils or flying insects. They hear voices or other sounds and sometimes catch imaginary insects with their hands and seem to hold them between their fingers, or feel them crawling about their bodies. They may smell chloroform in the bedclothes and taste poison in their food.

Disorientation is a cardinal symptom of this disorder, and may occur in all the spheres of time, place and person. Officials of the hospital may be mistaken for relatives or enemies. The patients are incapable of apprehending the nature of their environment and even in mild cases they are liable to lose themselves in formerly well known surroundings.

The memory is greatly impaired, and the majority of these patients have no idea how long they have been in the hospital. Women who have been married for years will answer to their maiden names only and frequently refuse to recognize their husbands. Others believe them to be unfaithful.

The extensive disturbance of perception leads to disorders of judgment and delusious appear. The patient cannot accept the reality of things. The hospital becomes a church or a theater, and the patient believes he has been moved from one room to another. He thinks the flowers are artificial and that everything has been changed to deceive him. Some believe their children are being tortured, for they can hear them screaming, or that they themselves are to be put to death. Some believe their character is being attacked. One woman believed that her husband was the father of a thousand illegitimate children, and a man that he had given birth to twins.

The emotional attitude varies, and while the majority of the patients are depressed, some are exalted and happy. There may be outbursts of temper alternating with a flood of tears. Some who are stuporous appear to be completely apathetic.

Motor restlessness is the rule, especially during the early stages of the illness and patients frequently have to be under some form of mechanical or chemical restraint, not only to preserve their strength and prevent injury to themselves, but out of consideration for others who may be near them. Some resist all attentions, refuse food and have to be fed with a tube.

Volition is badly disturbed, and voluntary attention is practically impossible. Instinctive attention can sometimes be aroused by showing the patient a watch or a bunch of keys. The speech is incoherent, and may consist of only disjointed words and phrases. There may be some rhyming and garrulity in excited cases. Sleep is poor, at best, and is most likely to occur during the earlier hours of the night. A few cases remain more or less stuporous for weeks, and without a careful history and proper laboratory studies have sometimes been mistaken for cases of encephalitis lethargica. A complete recovery of the patient will usually help to clear the diagnosis.

The majority of these cases will make a fairly complete recovery in from two to six months, if the physical condition of the patient can be sustained. A small percentage may remain permanently demented. The prognosis is unfavorable for those who are persistently destructive and dirty in their habits and for those who, during the acute stage, lose the instinct for speech and locomotion.

The treatment is essentially supportive. Cerebral activity should be reduced to a minimum and repair raised to the maximum, which means that the patient should have plenty of rest and an adequate supply of good nourishing food. He should be kept in bed during the greater part of his illness. A preliminary course of prolonged baths will frequently assist in forming the habit of rest in bed. Small doses of strychnia should be given from the beginning for reasons already indicated, and should be continued throughout the stage in which there is definite mental confusion with hallucinations, disorientation and peripheral analgesia.

The diet should consist of a liberal supply of milk, to which cream and raw eggs have been added, and on account of the tendency to a lowered alkali reserve, there should be an adequate amount of carbohydrates, which may be given in the form of cereals, orange juice, jellies and syrups of various sorts. Glucose may be given in the form of nutrient enemas, or intravenously, combined with sodium bicarbonate in those patients who are delirious or stuporous and are unable to take food by the mouth. Water should be given by mouth at frequent intervals, and no amount of fluids in the diet will adequately take care of the maximum fluid requirements, without the addition of water. We believe the importance of this feature is sometimes overlooked in the forced feeding of liquid diets to patients who are not sufficiently oriented to ask for water. The administration of alkalis in some form is usually necessary, at intervals, throughout the confusional stage of this disorder, and is best tolerated in the form of calcium carbonate, sodium citrocarbonate and sodium bicarbonate with glucose. The frequent testing of the total acidity of the urine will serve as a guide to the amount of alkali required, but will not take the place of an occasional test of the carbon combining power of the blood plasma to determine the amount of alkali reserve.

Tube feeding may have to be resorted to in some instances, and should not be shirked on account of its difficulties, and other disagreeable features. As the appetite returns solid food may be gradually substituted for the softer diet. Alcohol in moderate amounts added to custard, or in the form of eggnog, will sometimes promote sleep and improve the appetite, especially in those cases which have previously been more or less dependent upon such a stimulant.

Most cases require sedatives in some form to promote sleep and reduce motor excitement. Prolonged tepid baths are frequently of great assistance in accomplishing this purpose . Restraint should be avoided if possible, but a restraining sheet is much less irritating to the patient than that most objectionable form of being "held down" by nurses.

Paraldehyde and amylene hydrate in one

or two drachm doses, two or three times daily, frequently work well in these cases and are less cumulative than sulphonal and other similar drugs which serve a better purpose in the cases of maniacal excitement without much clouding of the consciousness.

Hydrobromide of hyoscine combined with morphine may have to be given at occasional intervals in the event of extreme motor restlessness, and it should be constantly kept in mind that the physical strength of the patient must be sustained at all times. There is little danger of forming a drug addiction during the acute psychosis. In cases of threatened collapse we should resort to copious intravenous injections of normal saline solution.

These cases are easily susceptible to fatigue long after the acute symptoms have disappeared, and most cases require, at the very least, two month's continuous rest in bed. It is therefore a great mistake to get the patient up too soon, for this may induce relapse.

Believing in the old adage that an ounce of prevention is worth a pound of cure, and having observed the beneficial effects of rest, nutrition, and thorough alkalinization in the treatment of the postoperative psychoses, it has occurred to the writer that even more precaution should be taken in susceptible individuals previous to major surgical procedures than has been done in the past, and we earnestly advocate that in such individuals, particularly, and to a lesser degree in all cases when it can be done without too much expense to the individual or his family, a preliminary rest period of three to five days in a hospital be required of all patients who are not emergency cases, during which time adequate physical, neurological and laboratory studies may be made, and thus still further reduce the percentage of frequency of the postoperative psychoses, a percentage which is, now, not large but sufficient to warrant even further precautions.

DISCUSSION.

Cuthbert Thompson: I have enjoyed Dr. Gardner's excellent paper which extends far beyond postoperative psychosis, because the treatment he has suggested is applicable to many other types of cases. I was glad to hear him speak of the importance of carefully examining the patient prior to operation. I believe the majority of the patients who have post-operative psychosis have a family history of some type of mental disturbance. Therefore I think it is a wise plan in these cases to have a thorough history taken from a neurological standpoint. Perhaps for every one case of severe psychosis following operation there are ten or it may be one hundred mild cases.

Considering the entire question of psychosis following surgical operations: I question whether there are many more cases after major surgery than there are in ordinary life. I question whether psychosis ever follows operation unless the patient had mental disturbance previously.

I enjoyed the paper very much.

J. Garland Sherrill: This topic is exceedingly interesting and Dr. Gardner has given us a most logical and practical exposition of the subject. While we have seen and treated some cases of psychosis that occurred postoperatively, yet as stated by Dr. Thompson the majority of them have had some mental disturbance prior to operation.

I recall one man, an alcoholic, who, after a minor surgical operation, suddenly became almost manaical. This was a post-war case. Experiences during the war, even though the individual was not engaged in actual battle, were very trying on the nervous system.

The cases worrying us the most have been those occurring in connection with thyroid disease, and following hysterectomy and salpingo-oophorectomy. A woman nearing the menopause was operated upon for an uterine fibroma. Her history showed instability of the nervous system, she was morbid and cried repeatedly, she was very despondent because of her condition. She did very well for a time then became imbued with the idea that the nurses and even the physicians were talking about her and were accusing her of certain things. Another woman, referred to me by Dr. Carl Weidner, had a mammary tumor. She had an unstable nervous system, she had goiter which was apparently nontoxic or not excessively so. She withstood the breast operation without anything unusual happening, but two months afterward she had a severe psychosis with a desire to destroy. and finally shot and killed her own father. The observation of a few such cases has a tendency to make one very careful about operating upon individuals who have any symptoms of psychosis. It has been my rule, unless I can offer some definite and positive benefits from surgical operation to recommend delay and attempt to improve the status of the patient by appropriate treatment before anything is done. It is admitted, however, that some neurotic patients improve markedly after some local lesion has been removed.

In the postoperative phychosis following oophorectomy or hysterectomy the administration of gland substance or extract is of great value. Sometimes the glandular extracts are also useful. The use of bromides in psychosis is often harmful, therefore I am inclined to agree with the views of Dr. Gardner and Dr. Stoddard about giving strychnine to improve the patient's physical status and increase nervous control. It has been noted in a number of cases that the administration of bromides aggravated the patient's nervous instability. Luminal often acts beneficially. Some of the hospitals are using luminal as routine after surgical operations, but in my opinion that is not good practice.

R. Hayes Davis: It is a great privilege to be present this evening and to hear the excellent paper presented by Dr. Gardner which has covered the subject so completely.

Exhaustive toxic psychosis and post-operative psychosis are very similar and are probably based on the same principle. Although they are comparatively infrequent, yet we see quite a number of these cases from time to time. I can recall four such cases that I have seen within the last few months. One followed a complicated fracture of the leg in which an anesthetic had to be administered several times. Another case followed pneumonia after the crisis had occurred and the temperature was normal, the lung was thoroughly advanced in its resolution when the patient became very nervous with delusions and hallucinations which lasted for more than two weeks. Evidently this was a case of exhaustive toxic psychosis. Another case followed diabetic coma and uremia. After the patient had recovered from these conditions, and the blood sugar had become normal, and after the nitrogen products in the blood had become normal, and he was apparently doing very well, he developed a severe psychosis which persisted for some time and finally disappeared under general tonic and supportive treatment.

We have always known that the treatment of these cases was rest, quietude and nutritious food: but I did not realize that the question of acidosis played such an important part until Dr. Gardner referred to the subject. That is probably the reason why nutrition has been of so much importance in bringing about recovery in these cases. The tests for acidosis, which Dr. Gardner asked me to mention, can be made in several different ways. One, of course, is to test the urine, that is the quantity of soda necessary to render the urine alkaline. That is the simplest test. Another method which is much better but more complicated is the determination of the carbon dioxide combining power of the blood. This test is also comparatively simple. The normal figures for the combining power are 53 to 77. If the combining power is below 30 it indicates a severe degree of acidosis. It is of interest to note that some of these cases of toxic exhaustive psychosis show a combining power of the blood as low as that. However, it is exceptional to find acidosis of that degree except in diabetic cases and severe toxic conditions that follow operations on acidotic children which, of course, are very frequent. In those cases there are very decided symptoms, but I did not realize that ordinary cases of postoperative psychosis would show a combining power that low. That is a symptom of great interest and should receive consideration in the future. I have heard no previous reference to this.

The treatment that has been the most successful in my hands will be briefly described, it consists principally of systematic feeding. It is not unusual to find that the patient refuses food. In many of these cases the patient absolutely refuses to eat or even take the smallest quantities of food. I have had great success in feeding these patients in the following manner: Make a mixture of half milk and half cream and milk sugar, 2 oz. to the quart. Determine the number of calories the patient requires and divide this total quantity of food into feedings to be given every half hour during the waking hours of the patient, which means very small quantities at a time, from one to two ounces. Almost any patient can be induced to take that quantity of food, and if he is forced to take that quantity before the feeding is over he has a high caloric diet. This is a form of feeding that I have not seen followed very often, but is most successful in all these cases. Where the patient refuses food absolutely, the use of a tube inserted through the nose into the esophagus is the most satisfactory method of feeding and also very simple. I have seen quite a number of such cases, in fact had an experience of that kind only the other day. A young boy had mild psychosis and absolutely refused to take any food, not even the milk and cream mixture that I am in the habit of trying, so we decided to give him nasal feedings every few hours. After the first nasal feeding he took nourishment very satisfactorily without any further argument. As soon as he was approached with the tube he was perfectly willing to drink the milk and cream mixture that he was required to take. So I think the tube also has a very stimulating effect on these patients in making them take food when they refuse to do so otherwise.

The quantity of fluid ingested by the patient is most important. When the patient refuses to drink sufficient water, fluids may be given by many methods. One of the most satisfactory is by hypodermoclysis which may be continued for several days if necessary. Four to six ounces of saline solution may be given each hour. Even glucose solution may be introduced subcutaneously with no discomfort to the patient. This is the most satisfactory means of introducing fluid into the system when other means fail.

In regard to the prognosis in these cases. It has been my experience that practically all the patients recover, with the exception of the most severe cases such as Dr. Gardner has mentioned. I recall a patient seen two yars ago in whom nasal feeding was continued for two months. The woman was very unstable mentally from the beginning, she never showed any improvement in her mental condition, although she gained in weight on this type of feeding. However, in the course of time she died.

As to the administration of drugs. I have used strychnine in all these cases, but have failed to see any particular change in the symptoms under the administration of this drug. I have tried it faithfully and although it is highly recommended yet in my experience I have not seen very satisfactory results from it. It has been my custom to administer sedatives when necessary, especially the bromides, luminal and other simple substances of that character. We must bear in mind that patients often develop psychosis from the use of these drugs, or the present psychosis may be continued by the excessive use of bromides. That is something of great importance and should be borne in mind.

Adolph O. Pfingst: Dr. Gardner's paper was of more than ordinary interest to me as I have been fortunate or rather unfortunate in that I have seen quite a number of cases of psychosis following surgical operations. My cases bear out what Dr. Gardner has said in regard to the clinical feature of these cases. They do not constitute any special morbid entity that would characterize them—on the contrary they present themselves in many ways. Among my own cases, for instance, there were confusional psychoses, manias and melancholias. I am sure that acute hallucinatory insanity is the most frequent of the postoperative psychoses. The patients through an exhausted nervous system become more or less delirious and hallucinations of various kinds occur affecting especially the special senses.

I had one case following extraction of cataract in which the patient had aural delusions and believing that he was being "called up" held his hand to his ear for hours, as though speaking over the telephone. I have had other cases with visual hallucinations, the patient seeing objects and people not present. One old Confederate veteran, using a broom as a gun, would drill for hours. Strangely, he would only do this when he believed no one was watching him. I also had a case in a man who developed the delusion that he was going to die and spent the greater part of each day making bequests of his wearing apparel to members of his family.

Next in frequency to confusional psychosis following surgery in acute mania. I have had two such cases, one dying in acute mania. It might be of interest to note, in passing, that the maniacal cases occurring after cataract operations, where patients pull off their bandages, claw the face and do wild stunts in general, have never been known to injure the operated eye. I have also seen two cases of suicide, evidently the result of acute melancholia, after cataract extraction.

It is strange that the literature contains so little data regarding postoperative psychosis. Cases were recorded by the barber-surgeons before medical education and examination to entitle one to practice the healing art was made compulsory, by Henry VIII in England, yet statistics as to frequency, cause, etc. are not abundant.

The disease presents a rather complex pathogenesis. The early writers looked upon the mental disturbance as resulting from the pain and shock of undergoing a surgical operation without an anesthetic. After the introduction of anesthesia in the middle of the last century these mental cases continued with perhaps equal frequency. It was then suggested that the nervous system was probably poisoned by the anesthetic or by the antiseptic agents and that this led to the development of mental sympoms. The advent of local anesthesia refuted this theory, also the fact that the brief operations, like those upon the eyes, were followed by psychoses as frequently as operations of greater magnitude.

Some years ago when I studied this subject and published my results the hypothesis was popular that postoperative psychoses were due to arteriosclerosis and to affections of the kidneys. As proof of this theory the relative greater frequency of such disturbances in advanced life was cited also the fact that in younger subjects in whom psychoses occurred frequently had renal trouble and sclerosed blood vessels.

I was much interested in what Dr. Gardner and Dr. Davis had to say regarding present day views of the blood chemistry and its bearing on mental disease.

In an endeavor to obtain some definite figures regarding the frequency of mental disturbance after surgical treatment several years ago I wrote to a number of the leading general surgeons and ophthalmic surgeons. From their replies I gathered that these psychoses are rare and that at a mean average one case occurs in from 400 to 600 operations. It has always been recognized that it is relatively most frequent in surgery of the genito urinary tract and of the eyes. Why this is so has never been definitely explained. In eye cases in which both eyes are bandaged for several days following the operation it is not an uncommon observation to have the patients go into a wild delirium which subsides almost immediately after removing the bandage. It is my belief that many of such cases have been included in the reports of the eye men as true psychoses and that this probably accounts for the greater frequency of these cases attributed to eye surgery—one in every 200 to 300 cases.

In the statistics of Hermann, Knapp, Kipp, Weeks, Parker and other conservative oculists the average is much lower, Knapp's large operative statistics representing but one in every 1000 cases of cataract extraction.

I am convinced that the essayist is correct in his hypothesis that some basic condition, be it in the blood, in the nervous system or elsewhere predisposes the individual to the mental disturbances following surgical operation and that the operation itself is only the determining or exciting cause.

In referring once more to the eye cases it might be of interest to note that nearly all of eye cases occur after cataract operation in which both eyes are bandaged. It has occurred, but with great infrequency, after iridectomy and enucleation. This would rather indicate that the depressing effect of putting the patients in the dark is perhaps an etiological factor in bringing on these psychoses. Eye cases would rather refute the idea of a nervous and physical weakness being causative factors in postoperative psychoses. These old people, owing to their inability to see, are usually occupied in sitting around, eating and in sleeping, and hence would hardly need a period at the infirmary to build them up physically and nervously before the operation in order to avoid postoperative mental derangement.

W. Hamilton Long: I want to express my thanks to the society and to Dr. Horine for the privilege of being present at this meeting and hearing Dr. Gardner's splendid paper. It has been claimed that there is a similarity between the manifestations of postoperative psychosis and the more common type of mania seen in puerperal women. Puerperal mania exhibits many phases. Sometimes there is a suicidal tendency, in other cases the patient attempts to destroy someone else. The prognosis in both types is practically the same, recovery is incomplete in many of the cases.

Insofar as the question of alkali reserve and acidosis may be concerned, I think the anesthetist is entitled to credit in the matter of preventing acidosis by preserving the alkaline balance. The routine practice at present is to prealkalinize every patient prior to the administration of inhalation anesthesia. In this manner we prevent postoperative nausea, the acidotic type of nausea which is the most persistent of all the nauseas following anesthesia. There are other causes of post-operative nausea, but acidosis is the most persistent and often the most severe. To avoid this we raise the alkali reserve prior to administration of the anesthetic with the idea of preventing the acidotic type of nausea and incidentally preventing acidosis. The surgeon has found this plan of immense advantage in the prevention of shock following operative procedures.

Granville S. Hanes: I have seen several cases of postoperative psychosis, the most of them being due to alcoholism. I want to relate briefly the first case of this kind I ever saw. One Thursday Dr. J. M. Mathews operated on a man, who seemed to be perfectly healthy, for hemorrhoids. On Saturday afternoon, after another operation in the same institution, this man was encountered walking through the corridor with nothing on except his nightshirt. When asked where he was going he said "I am going home." He was induced to return to his room and finally became quiet. About five o'clock the same evening I went to the hospital in response to a telephone message and found this man standing in a corner with a knife in his hand, and he insisted three negroes were trying to bar his exit. We took the knife away from him but could not keep him quiet and finally had to strap him in bed. It later developed that this man had been in the habit of drinking large quantities of alcoholics especially at night. We them knew, of course, that his symptoms were due to alcoholism. Not long afterward we had another similar case, and just as soon as the symptoms began to develop we commenced giving him whiskey. Within twenty-four hours he was completely relieved.

William E. Gardner (in closing): I thank the gentlemen for their liberal discussion, especially Dr. Pfingst for citing statistics in detail which had to be omitted in the paper. I believe statistics indicate that the large percentage of psychoses following eye operations is due to the fact that cataract extractions are undertaken in elderly people who already have arteriosclerosis, damaged kidneys, etc. It was believed for a long time that younger individuals who developed postoperative psychosis probably had some tendency toward arteriosclerosis.

I fully endorse the idea expressed by Dr. Thompson, that perhaps there is always an unstable nervous background in those individuals who develop this psychosis. The previous mental and nervous instabilities are undoubtedly important factors in determining the types of psychoses referred to in the paper.

I agree with Dr. Davis about the doubtful efficacy of strychnine. I have been somewhat disappointed with the effect produced by strychnine in these cases. I use it routinely on the theory advanced by Dr. Stoddard, although I have not administered it hypodermatically. I give the drug orally unless the patient at the time is so confused that he refuses to take medicine by the mouth. Stoddard advises that liquor strychnine be given in 4 m. doses hypodermatically. The English preparation is relatively weaker than our nux vomica. In view of the work that has been done along that line, I am inclined to continue the use of strychnine with the idea of increasing the appetite, improving the mental status and nutritional powers of the individual, and perhaps inhibiting the tendency to hallucinations to some extent.

Stoddard calls attention to the fact that overcoming the analgesia by the administration of strychnine has a most favorable effect in many psychoses, especially the toxic exhaustive and confusional types. On the same basis of reasoning strychnine would seem to be indicated in this form of psychosis, particularly those depending upon instability of the individual prior to operative procedures and when postoperative disturbances occur.

In most of the cases where we encounter the confusional type of psychosis with disorientation, disturbance of perception, hallucinations, etc., I believe acidosis or lowered alkaline reserve to be the most important etiological factor. The reason we see more mild postoperative cases than we formerly did is probably because the patients have better preoperative preparation than heretofore. This includes proper feeding, the giving of glucose, alkalis, etc., both before and after operation. These are very important factors.

Postoperative psychosis is relatively rare. The estimate of one case in five hundred is probably rare. The estimate of one case in five hundred is conservative, especially if we take into consideration many temporary confusional states, lasting a week or ten days, which sometimes follow surgical procedures, but which are not of sufficient intensity to be classified perhaps, as true psychoses.

Hypertrophy of the Heart in Infants. Mouriquand, Bertoye and Charleux describe a case of hypertrophy of the heart in an infant, aged 13 months. The hypertrophy was associated with grave anemia. The systolic murmur heard in the precordial region was so intense as to suggest interventricular communication. Necropsy showed the interventricular septum intact, with coexisting hypertrophy of the kidneys. The latter as well as the heart appeared histologically sound. Thus the murmurs were merely of inorganic origin. The rarity of these murmurs in infants is explained by the relatively weak contractions of the myocardium at that age.

CASE OF CARCINOMA OF THE SIGMOID.*

By J. Garland Sherrill, A. M., M. D., F. A. C. S., Louisville.

The following case exemplifies what has so often been said in regard to carcinoma of the internal organs, namely: that the disease may exist for a long period of time without creating sufficient symptoms to attract the attention of the patient.

On April 6th, 1928, I saw in consultation an unmarried woman aged 59 years, whose mother had been under my observation and was operated upon sixteen years previously for carcinoma of the breast with recovery. This maiden lady had been perfectly well so far as she knew, she worked every day as a seamstress, and had never been ill.

Two weeks before I saw her she called her physician stating that she had slight soreness in the lower abdomen, just enough to attract her attention. On April 5th, the day before I saw her, she noticed a tumor-mass in her abdomen which she described as a "lump in her stomach." She consulted her physician who recognized that the lesion was probably surgical and asked me to see the patient in consultation. Her physician had already concluded that there was a strong suspicion of malignancy.

Examination revealed a few nodules posterior to the uterus but apparently not connected therewith. The uterus was normal in size and position and not firmly fixed. The tumor, so far as could be determined, did not infiltrate the surrounding tissues.

The first lesion to be considered was ovarian cyst of the papillomatous type, but there was no other evidence of a cystic growth in that region. Moreover, the position of the tumor seemed to exclude an ovarian cyst.

The next thing we considered was malignancy involving the internal viscera, probably the descending colon or sigmoid, and on basis of this diagnosis the question arose as to the best method of handling the case. Of course we knew if the growth was benign it could be easily handled, but if malignant as we suspected serious difficulties might be encountered.

Celiotomy, April 7th.: There was an annular growth of the sigmoid which had caused partial constriction. The growth was 10 cm. wide and about 3 cm. in thickness. There was considerable nodulation on the posterior surface of the liver, and the head of the pancreas was involved. The growth evidently originated in the colon but metastasis to the omentum, liver and pancreas had occurred.

---

*Read before the Louisville Medico-Chirurgical Society.

The patient gave no history of obstruction, but had suffered from constipation all her life. She had no pain until a few days prior to operation. No attempt was made to remove the growth. A colostomy was performed and the abdomen closed.

A somewhat similar case came under my observation some time ago. Operation was performed upon a man 63 for the removal of gall stones, at which time exporation of the abdominal viscera showed no evidence of additional pathology. However, twice during the following year the patient had symptoms of intestinal obstruction, once in Florida, and once after he returned to Louisville. He was again subjected to operation for what was thought to be adhesions in the gall bladder region, but which proved to be a malignant disease of the sigmoid with a transplant in the left lobe of the liver. A colostomy was performed and the tumor allowed to remain undisturbed.

These two cases illustrate what was said in the beginning, that malignancy of the internal organs may exist and progress to the stage of inoperability without producing the usual symptoms, such as pain, loss of flesh, cachexia, obstruction, diarrhea and the passage of blood from the rectum. All these symptoms were absent in the first case reported, yet the woman had an inoperable cancer of the sigmoid.

These cases particularly emphasize the advisability of yearly or semi-yearly roentgenray study of the intestinal tract. This method of investigation will sometimes show early lesions involving the intestine, and in such event give the surgeon a chance at least to save the life of the patient.

DISCUSSION.

Granville S. Hanes: I was particularly impressed by Dr. Sherrill's statement that in both his cases the patients complained of no pain prior to the time the lesions were discovered in the sigmoid. I am convinced that the medical profession has an erroneous view regarding the symptoms of malignancy of the colon, rectum and sigmoid. Pain does not occur nearly so frequently as has been supposed. I have seen a large number of patients with carcinoma of the rectum and sigmoid, in fact have four or five under observation at the present time. One of my patients died less than two weeks ago from long-standing carcinoma of the sigmoid. She had never suffered any attacks of pain.

Another interesting feature in Dr. Sherrill's report is his statement that malignant disease of the lower segment of the intestinal tract may exist without the patients knowing anything about it until they have a palpable tumor or complete obstruction. This is one point about which I would like to differ slightly with Dr. Sherrill. So far as I am able to recall, every patient with carcinoma of the intestinal tract coming under my observation has shown loss in weight. This has been found true in practically 100 per cent of cases.

I am now going to make a statement that may seem strange to many of those present. There are many people with disease of the lower segment of the intestinal tract in this vicinity. I have seen them since the time when I was associated with Dr. J. M. Mathews. I have never seen a carcinoma develop in the sigmoid or rectum of an individual who had chronic infection involving these structures. There is something in the intestinal wall when it is infected that prevents the development of carcinoma. We have no conception of the number of people who have chronic infection of the lower intestinal tract. Individuals who have suffered from typhoid fever are probably immune to carcinoma of the intestinal tract.

Carcinoma of the sigmoid so located that complete removal is possible offers a favorable prognosis provided metastatic involvement has not occurred. As a rule metastasis in these cases occurs late in the history of the disease.

I do not wish to report the case in detail, but a man living along the Ohio River came here before the war ten years ago. One of my friends sent him to me because he had slight hemorrhage from the rectum. A proctoscope was introduced which reached to the lower segment of the sigmoid. The canal was found perfectly clear, there being no bleeding, and the patient was informed accordingly. Within a year he returned stating that he had been having some trouble in his side and thought an abscess had formed. Examination of his abdomen then revealed a large tumor in the region of the sigmoid, and he was told an operation should be performed and a segment of the intestine removed. He finally consented and we operated upon him, removing a very large cancerous mass from the upper portion of the sigmoid. Examination of the abdomen showed no evidence of metastasis. A double-barrel colostomy was performed according to the method of von Mikuliez. That man is living today and has remained perfectly well.

I have enjoyed Dr. Sherrill's report.

R. Hayes Davis: Dr. Hanes and myself now have under observation a case that has been very interesting to me. The patient is a woman of about 52 who was operated upon in California five years ago for rectal carcinoma. A very extensive operation was performed, all the muscular tissues about the rectum being removed. A short time ago she developed intense pain in her back referred principally to the sacral region. A roentgenogram was made which showed definite necrosis of the lower portion of the sacrum which we believe due to metastasis. The most interesting feature is that metastatic nvolvement did not develop until five years after the operation.

J. Garland Sherrill (in closing): I have little to add in closing. By annual or semi-annual examinations as already suggested, no doubt incipient disease of the intestinal tract could occasionally be detected. The roentgen-ray is a wonderful help in these cases. However, to show how mistakes are sometimes made the following case is cited: I was called to see a man whose intestinal tract had been examined by a roentgenologist less than one year previously and pronounced negative. The patient still complained of symptoms and came to me. Examination then disclosed a small mass in the region of the sigmoid. Personal scrutiny of the roentgenogram made one year before showed a narrowing of the intestinal lumen at the point where the tumor-mass was located. This had been overlooked by the roentgenologist. Celitomy revealed an inoperable carcinoma of the sigmoid, and the abdomen was closed. Unless the roentgen-ray films are properly interpreted mistakes are likely to be made. Careful investigation of every individual more than thirty-five years old every few months, particularly if loss of weight or symptoms referable to the intestinal tract are present, would enable one to recognize some of these cases before the disease became far advanced. When we consider that recently, within one year, six physicians succumbed to carcinoma in this immediate vicinity the situation becomes alarming, and any measure that will assist in the diagnosis or treatment of malignant disease is worthy of our consideration.

My views accord with those of Dr. Hanes in some respects. Perhaps we have attributed too much importance to the factor of irritation in the production of carcinoma. There are thousands of instances where irritations are not followed by cancer. Every year I become more positive in my belief that carcinoma and sarcoma are due to the direct effect of living organisms which have invaded the body. In a conference with Dr. Coley, of New York, a few months ago he expressed himself of being very strongly of the same opinion. He has seen an immense number of cases of carcinoma and sarcoma. The late Roswell Park, of Buffalo, was also a believer in the organismic origin of malignant disease. Yet the cancer reports of New York State show that we know little about the subject.

NEWS ITEM

Dr. Harry M. Weeter announces the opening of a clinical pathological laboratory, 617 Heyburn Building. Practise limited to laboratory diagnosis. Phone City 175. Residence Phone Belmonth 1389-W.

BOOK REVIEWS

MUSCLE FUNCTION, by Wilhelmine G. Wright, Boston, with a foreword by J. Playfair McMurrich, Professor of Anatomy, University of Toronto. Paul B. Hoeber, Inc., New York.

The interest that during the late War was deservedly awakened in muscle training as a means for remedying or relieving muscular deficiencies produced by wounds has naturally been accompanied by a desire to know fully and accurately how the muscles of the human body act in the performance of its various movements. Several treatises, such as those of Beevor, Bowen and Tait Mackenzie, Colin Mackenzie and Sir Arthur Keith, to mention only some of those that are written in the English language, have appeared and all contain valuable information; the present work by Miss Wright adds to that information the results of careful observation.

CULTIVATING THE CHILD'S APPETITE. By Charles Anderson Aldrich, M. D. A timely book for parents beset by the baffling problem of the child's refusal to eat.

The condition is widespread—the doctors call it "Anorexia"—the parents simply say " my child *won't* eat"—Dr. Aldrich in his book conjures up this familiar scene: . . . "over the dinner table, parents and children are engaging in countless battles, from which the children are usually emerging victorious. Consequently we find many undernourished children who have developed marked behavior disturbances, and man yworried, anxious, and worn mothers and nurses, not to mention irate fathers."

"Cultivating the Child's Appetite" is a book for every parent.

The MacMillan Company, Publishers, New York. Price, $1.60.

LOCAL ANESTHESIA by Geza de Takats, M. D., Asst. Prof. of Surgery, Northwestern University, School of Medicine, Chicago, Ill., with an introduction by Allen B. Kanavel, M. D., Prof. of Surgery, Northwestern University, Medical School. Octavo of 221 pages with 117 illustrations. Cloth, $4.00. Philadelphia and London: W. B. Saunders Company, 1928.

This is a concise, authoritative presentation of the subject. The author, Dr. de Takats, is exceptionally well qualified to present the subject because of his large, personal experience both here and in the First Surgical Clinic in Budapest. This experience has permitted him to point out under what circumstances local anesthesia may be used to the best advantage, to indicate the most effective method of its administration and to suggest how complications may be avoided. He has covered the subject adequately and with a clearness and conciseness that makes his monograph of value both to students and to surgeons.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 8, Number 1. (Lahey Clinic Number—February 1928). 210 pages with 74 illustration. Per clinic year (February 1928 to December 1928.) Paper, $12.00; cloth, $16.00 net. W. B. Saunders Company, Philadelphia and London.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 8, Number 2. (New York Number—April 1928) 256 pages with 90 illustration. Per clinic year (February 1928 to December 1928.) Paper, $12.00; Cloth, $16.00. Philadelphia and London.

THE MODERN TREATMENT OF HEMORRHOIDS. By Joseph Franklin Montague, M. D., F. A. C. S., of the Rectal Clinic, University and Bellevue Hospital Medical College; Lecturer of Rectal Pathology; Fellow, American Protologic Society, New Yory Academy of Medicine, and New York Pathological Society.

Foreword by Harlow Brooks, M. D., F. A. C. P., Professor of Medicine, University and Bellevue Hospital Medical College; Fellow, American Gastro-Enterologic Society, American Association of Bacteriologists and Pathologists, New York Academy of Medicine.

116 illustrations. Philadelphia and London: J. B. Lippincott Company, Publishers, Price $5.00.

A digest on modern views as to the treatment of hemorrhoids is attempted in this monograph. It is earnestly hoped that the plain discussion of facts presented here will do much to place the therapy of hemorrhoids on a rational basis. It is also hoped that etiological theories presented herewith will receive serious consideration in reference to the extremely important relation that certain systemic conditions bear to hemorrhoids. In short, the author hopes to eradicate the empiric element from our present-day methods of treating hemorrhoids.

This is attempted by means of concise statements concerning, and vivid visual portrayals of, the various methods approved by the profession. To this end, photographs and diagrams have, with the indulgence of the publishers, been used very freely in an attempt to furnish, in concrete form, guides both to understanding and to treatment. Many of the illustrations shown herein are based on films used in my "Motion Picture Course in Proctology.'

GONOCOCCAL URETHRITIS in the Male, For Practitioners. By P. S. Pelouze, M. D., Associate in Urology and Assistant Genito-Urinary Surgeon at the University of Pennsylvania. Octavo volume of 357 pages, illustrated. Cloth, $5.00. Philadelphia & London: W. B. Saunders Company, 1928.

The author gives a clear statement of how to diagnose, how to treat, and how to prevent this prevalent disease as he has found these things are best done. Years of experience are summed up in these 350 pages.

Pathology, susceptibility, mode of infection, incubation, symptoms and causes of symptoms, clinical course and complications—these are first given. Then Dr. Pelouze goes into a very definite discussion of treatment, hygiene, oral medication, vaccines, prostatic massage, evidences of cure and many other important phases of the subject which are of immediate interest to the general practitioner.

SAFEGUARDED THYROIDECTOMY and Thyroid Surgery, A Manual Designed as a practical guide for the general surgeon. By Charles Conrad Miller, M. D., with 52 illustrations.

F. A. Davis Company, Publishers.

While many books are available upon the thyroid, this volume emphasizes certain phases of diagnosis and treatment which have been neglected or ignored by other writers. The illustrations are splendid, numerous and clearly printed.

STATE EPIDEMIOLOGIST APPOINTED

Dr. J. L. Jones, a recent graduate of the Medical School of Harvard University, has been appointed as State Epidemiologist and is now established in this position. Dr. Jones is originally from Utah, but during the past eight years has been in the various states of the East pursuing his studies in medicine and public health. After graduating from the medical course he spent two years in the Harvard School of Public Health, receiving a D.P.H. He interned at the New Haven Hospital where he received considerable experience in pediatrics and communicable diseases. During the past year Dr. Jones was assistant medical advisor and instructor in hygiene and preventive medicine at Cornell University.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Woodford: The Woodford County Medical Society was reorganized August 13, 1928, at which meeting Dr. Scott, Dr. Estill, and Dr. Vance were guests. They had a large attendance and a very nice dinner was served. Dr. Scott read a paper on Tuberculosis. Dr. W. E. Risque, of Midway, was elected president, and Dr. S. A. Blackburn, secretary.

DR. CHAS. A. VANCE,
Councilor, Tenth District.

Cumberland Valley: The Cumberland Valley Medical Society had its August meeting at Dishman Springs which is one of the most beautiful and interesting spots in Kentucky, because of being associated with the early pioneers.

The meeting was called to order by Dr. Edw. Wilson of Pineville, and eighty-five members were present. This number did not include the wives and daughters who attended the Auxiliary meeting. The hotel management arranged the chairs under the trees in circular form so that the speakers could be easily heard.

The meeting opened at 10 a. m., to discuss the recent development in the treatment of Pellagra. Dr. A. T. McCormack opened the program. Speeches were made by physicians from Bell, Harlan and Knox counties.

Dr. J. H. Hendren, who probably has seen more Pellagra than any other member in the state, gave a description of this disease and its progress in Kentucky. Dr. L. H. South, Director of the Bureau of Bacteriology, spoke upon the importance of nutrition in treating Pellagra. Dr. M. D. Hoskins, All-Time County Health Officer of Bell County, has a great many cases under his care and he gave a detailed description about how he is managing the cases in his County.

At 1 p. m., the manager of the hotel served a chicken dinner at which time each person rose and told his name and where he was from. The afternoon meeting began promptly at 2 p. m., and Dr. C. N. Kavanaugh of Lexington gave a very interesting talk on Malta or Undulant fever and its presence in Kentucky. This paper was discussed by all present. Dr. Parry of Tennessee, read a very interesting paper on Prostatectomy.

The meeting then adjourned to meet at the Annual Meeting at Harlan. The Cumberland Valley Medical Society boasts of being one of the most active societies and best attended of any outside of the State Medical Meeting.

W. R. PARKS, Secretary.

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Published Monthly under Supervision of the Council
Editorial and Business Office, Corner State and Twelfth Streets. Subscription Price, $5.00. Single Copy, 50 cents
Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowling Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8, 1917, authorized May 25, 1920.

THE N. Y. ACADEMY OF MEDICINE
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NOT only does this book consider diet in disease, but it also goes fully and explicitly into the nutritional requirements in health, including an enlightening section on diet for school children. The chapter on the Feeding of Infants is the contribution of Dr. McKim Marriott of Washington University, St. Louis, and embraces the latest lactic-acid milk feeding. There is a most important chapter on diet and reproduction, with special diet-lists in pregnancy and in lactation.

The subject of metabolism occupies 85 pages, giving the Harris and Benedict basal metabolic tables, Locke's food values and alcoholic beverages tables.

A subject of timely interest, and one fully treated in this book, is that of liver feeding in pernicious anemia. Here is given the work of Murphy and Minot, with detailed menus and exact methods of preparing the liver. Then there are 50 pages on diabetes, including the latest treatment of that disease with diet alone and in conjunction with insulin.

Nor is the *surgical* side forgotten. There is a chapter on Diets for Surgical Patients, from the experience of Dr. Barney Brooks of Vanderbilt University.

Octavo of 783 pages. By JAMES S. MCLESTER, M. D. Professor of Medicine at the University of Alabama, Birmingham. Cloth, $8.00 net.

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VOL. XXVI. BOWLING GREEN, KY., NOVEMBER 1928 No. 11

EDITORIAL

THE RICHMOND MEETING

In every way the Richmond meeting of the Kentucky State Medical Association was the most successful it has ever held. The largest number of members registered that has ever been present at a meeting outside of Louisville. The attendance at the sessions constantly filled the hall and eighty-three were present to hear the last paper on the program.

The setting of the meeting was noteworthy and ideal. Housed in the beautiful, new Burnam Hall of the Eastern Kentucky Normal School and Teachers College, fed in the model cafeteria, perfectly conducted; with the beautiful lawn for conferences and conversation, everybody was in such a good humor that scientific papers never received and rarely merited better attention.

The proceedings of the House of Delegates, which will appear in the December issue, were of rare interest. Practically every committee reported, and the reports were discussed freely, and every dutiful citizen and physician of Kentucky will find them important to the welfare of the State. The address of Doctor Stewart Roberts of Atlanta, delivered to a large audience at the Christian Church, met with general approval. Doctor Roberts expressed what every physician and successful practitioner feels, but he expressed it so delightfully that his audience was in complete accord with him throughout.

Expressions of gratitude to President Donovan and the regents of the Eastern Normal School and Teachers College, and to the physicians of Madison County were sincere and heartfelt for an innovation in the housing of the annual meeting of the Association which is unique in medical history.

THE WOMAN'S AUXILIARY

The most enthusiastic wellwisher of the Woman's Auxiliary who was present at its first meeting at Crab Orchard only a few years ago, could hardly have dreamed of the fine meeting held at Richmond. It was noted that more women were present at this meeting than physicians who attended any meeting of the State Association in its first fifty years. Mrs. Martin presided with sincerity and grace, and her report to the House of Delegates of the activities of the Auxiliary was received with practically universal approval. The address of the new President, Mrs. J. T. Reddick inspired all those present with a determination to accomplish even greater results this year.

The unanimous election of Mrs. Philip E. Blackerby as President-elect was a tribute to her charm and ability.

The Auxiliary has passed the incubation stage, and it would have made our readers proud of them could they have been present and heard the serious discussion of ways and means to help the members of the medical profession solve their many complex problems.

THE PRESIDENT-ELECT

The Association honored one of its outstanding members in the unanimous election of Doctor Granville S. Hanes, of Louisville, as President-elect, and worthy successor in his ability of the beloved Doctor John M. Mathews, who was president both of our own Association and the American Medical Association. Doctor Hanes has since the earliest years of his practice, assumed a position of great importance in the profession. His technical skill, sound, common sense, courtesy and affable bearing have won him the respect and admiration of his fellows, and his speech of acceptance indicated his feeling of responsibility in accepting the leadership of the profession during this great constructive period. The Medical Profession of Kentucky will be solidly behind President Hanes in his leadership.

DEPARTMENT OF CARDIOLOGY

The Council of the Kentucky State Medical Association has just seen fit to establish a new Editorial Department for the Journal, namely: a Department of Cardiology. Because of the prevalence of and apparent increase in heart disease the Council felt that the establishment of such a department was imperative.

Dr. Emmet F. Horine and his associate, Dr. Morris M. Weiss, have been placed in charge of this department. They have consented to prepare scientific editorials relative to advances in heart disease. These editorials will be published from time to time in future issues of The Journal.

ORATION IN MEDICINE

GASTRIC AND DUODENAL ULCERS.*

By W. S. Wyatt, Lexington Clinic, Lexington.

The incidence of gastric and duodenal ulcers shows wide variations in different parts of the world. In Russia it is given as 0.8 per cent, North America 1.3, Germany and England about 5 per cent, and Denmark 16.7 per cent.

Ulcers occur more frequently in men than women, the ratio being 3:1. While the majority of ulcers appear between the ages of thirty and fifty years they may occur from infancy to old age. Formerly gastric ulcers were thought to be commoner than duodenal but due to more refined methods of diagnosis and the observation of surgeons at operations the reverse is found to be true, the ratio is 1:10.

Etiology.

From a clinical standpoint the etiology may be due to a local or general infection, chemical or metabolic toxins, or to systemic disease. A circumscribed malnutrition or necrosis of the mucosa or wall of the stomach or that portion of the duodenum subjected to the digestive action of the gastric juice is essential for development of ulcer. The exact role which the acid gastric juice plays in the formation of ulcer or its chronicity is unknown. But the control of pain and the institution of the healing process seem to be intimately associated with marked reduction in the acidity of the gastric contents; this is true whether the lesion is treated medically or surgically.

Pathology.

In a routine study of the material from 2000 postmortem examinations at the Mayo Clinic, Hargis and Robertson found gastric ulcers present in 7.05 per cent and duodenal ulcers present in 11.85 per cent. In 7 per cent both stomach and duodenum showed evidences of ulcer.

Ulcers vary in size from that of a pin-head to ulcerated areas involving the greater part of the organ. Such large ulcers are rare and are generally thought to be due to a coalescence of several separate ulcers. They may be superficial, involving the mucosa and submucosa only, or they may extend to the muscle layer and peritoneal coat. Ulcers not involving the peritoneum may be overlooked at operation until the stomach or duodenum is opened. An ulcer may perforate into the free peritoneal cavity but more frequently the peritoneal surface becomes adherent to the surrounding structures. The liver, pancreas, omentum, small bowel, large bowel, gall-bladder and spleen may become adherent. Perigastric and periduodenal infection may result in a local abscess which is usually subdiaphragmatic. The base of the ulcer may be the pancreas or liver or some other neighboring organ. Adjacent hollow viscera, including the blood-vessels and bile tracts, have been penetrated. Fistulous tracts develop. Cicatrization of an ulcer may cause pyloric obstruction. The healing of a large ulcer of the stomach may cause extreme deformity of that organ. One of the causes of hour-glass stomach is the cicatrization of a so-called "saddle shaped ulcer."

There may be multiple ulcers both of stomach and duodenum. The usual number is two or three but as many as thirty-four have been found in the stomach, while the contact or "kissing ulcer" of Moynihan in the duodenum is not uncommon. In 30 per cent of gastric ulcers and 22 per cent. of duodenum ulcers, multiple ulcers are present.

The common site of gastric ulcers is the lesser curvature where about 90 per cent. are found. The posterior wall ulcers constitute about 10 per cent. and the anterior wall one per cent .

More than 95 per cent. of duodenal ulcers occur within the first three centimeters of the duodenum and a majority of them are on the anterior wall near the upper border.

The diameters of gastric ulcers are greater and their craters deeper than duodenal ulcers. The latter have much less scar tissue than gastric ulcers.

Gastric ulcers may become cancerous while duodenal ulcers rarely become so. MacCarty states that gastric ulcers larger than 2.5 centimeters are generally cancerous.

Duodenitis was called attention to by Judd. The history is that of ulcer. Palpation of the bowel is negative. When the bowel is opened no ulceration is seen or at most one or more small superficial erosions. Congestion, edema and stippling are found. Profuse hemorrhages may occur. Microscopically the mucosa shows evidences of inflammation, edema, polymorphonuclear leucocytes and lymphocytes. The lesion is generally diffuse.

Symptoms.

A gastric or duodenal ulcer may exist without giving rise to subjective symptoms of sufficient intensity definitely to arouse the attention of the affected individual. Or the symptoms may be mild in the early stages, appearing one to three hours after the noon meal as a feeling of heaviness, slight distress or pyrosis, and then gradually disappear before supper. After an elapse of a few months, or occasionally only a few weeks, the distress increases in intensity and is variously described as burning, gnawing, boring, aching, cutting and cramping. As the intensity of the symptoms increases the pain also begins to appear not only one to three hours after the mid-day meal but also the same time after the other two meals. If the patient remains quiet after the evening meal, there is usually very little distress. Almost invariably the pain is greater in the afternoon than in the forenoon except when a light meal is eaten at mid-day. It is likely to increase until it reaches its maximum intensity and then to continue as a steady or slightly fluctuating distress until it grows less and disappears before supper. If a quantity of food and secretion is retained the distress may continue until relief is obtained by eating supper.

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*Read before the Kentucky State Medical Association at Richmond, September 10, 11, 12, 13, 1928.

The severer and more prolonged the pain and the more regular its daily recurrence, the greater the likelihood that there is pyloric obstruction and retention. Peptic ulcer resulting in pyloric obstruction is usually on the duodenal side of the pylorus. When obstruction is present the distress or pain appears occasionally or regularly between mid-night and 2 a. m.

These symptoms are greatly modified at times in a large number of patients as they soon learn to obtain relief by taking soda, a glass of milk or some other food when the distress begins. By eating lightly and taking soda for a few weeks the patient may be entirely free from any distress for as long as six to nine months or occasionally a year.

The pain may cause nausea and vomiting. Either spontaneous or induced vomiting usually gives relief. The quantity of vomitus varies from half a pint to a quart or more, mostly liquid, containing food particles which are chiefly carbohydrate debris. Only occasionally is a large quantity of food contained in the vomitus. A patient may give a history of having vomited food eaten the day before and even a week or more before. Vomiting is present in less than half of all cases, is directly related to the severity of the pain, and occurs at its height. Hematemesis, or vomiting of blood, is present in 28 per cent. of gastric ulcers and 27 per cent of duodenal ulcers, while melena, or tarry stools, occurs in only 10 per cent. of the former and 25 per cent. of the latter. Hematemesis and melena occurred in 62 per cent. of gastric ulcers and 48 per cent.. of duodenal ulcers. Death rarely follows the initial hemorrhage but if it does occur, it is usually after the third or subsequent attack.

Obstruction or some degree of retention can be demonstrated in 15 per cent. of cases.

Hour-glass contraction is found in about 8 per cent. of gastric ulcers and is more frequent in women, the proportion being about 3 to 1.

The distress of pain is practically always located in the epigastrium about mid-way between the ensiform cartilage and the umbilicus and oftener to the right of the mid-line. Occasionally it is beneath the right costal margin but rarely as far to the left as the hypochondriac region.

Tenderness on pressure is not a constant symptom. It is greatest when the spontaneous pain is at its height and may disappear quickly as the former subsides.

A history indicating that an active ulcer has been present from a week to one or two years is frequently obtained, while one of a recurrent ulcer of ten to fifteen years' duration is not uncommon. And occasionally one is obtained indicating that an ulcer has been present thirty to forty years.

DIAGNOSIS.

The diagnosis of peptic ulcer is looked upon by the average busy practitioner as a rather formidable task. When a case presents itself with a mixed picture of abdominal distress he feels that he has not the time to devote to untangling it. This should not be for he is the one, as a rule, who sees the patient first and in the early stages of his trouble before complications have arisen and at a time when properly instituted medical treatment responds in a cure. The greatest obstacle to the physician at this period is obtaining the consent of the patient to undergo a complete examination which involves considerable time and expense. The laity, however, are becoming educated to the fact that "attacks of indigestion," for which they seek the advice of their physician, are not to be passed over lightly as some minor ailment but require a thorough examination and study in order to arrive at the correct diagnosis.

The diagnosis of peptic ulcer should involve a careful consideration of its probable location, duration and complications. A careful search should be made for the following complications: (1) pyloric obstruction; if present, whether the obstruction is organic or due to pylorospasm; (2) perforation; (3) perigastric adhesions; (4) hour-glass or other deformity of the stomach; (5) hemorrhage; (6) carcinoma. An intelligent history with special attention to the distress as to whether it appears and disappears under influences consistent with ulcer; a careful physical examination and the tests of blood and urine should be done before any special tests with reference to the stomach are started. This preliminary or "ground work" can not be emphasized too much.

A competent roentgenologist can demonstrate about 96 per cent. of gastric and duodenal ulcers. The method is so precise that lesions which are definitely portrayed by the roentgen-ray may be difficult to find at the operating table.

When all available means of diagnosis have been employed a smaller margin of error occurs in detection of gastric and duodenal ulcers than in any other field.

Prognosis.

The prognosis of gastric ulcers in young individuals treated medically is good. The tendency of these ulcers to undergo carcinomatous change in adults is not to be overlooked and with the exception of those ulcers near the cardia which can not be excised or destroyed, the results of surgical treatment are good.

Duodenal ulcers practically never become cancerous. Medical treatment of those which have not had symptoms over a year is favorable for complete cure.

Treatment.

In the past few years there has been considerable discussion as to the frequency with which carcinomatous change occurs in gastric ulcers. Since gastric ulcer is a comparatively rare disease, one gastric ulcer being observed to every ten of chronic duodenal ulcer, the recent statistics of Alvarez and MacCarty are very instructive and convincing. They used for their study the percentage distribution curves based on 638 gastric ulcers and 682 gastric carcinomas, all resected. Their conclusions are: "Gastric ulcers larger than a quarter (2.4 cm. in diameter) or carcinomas smaller than that are so rarely encountered that the physician with an average practice may go several years without seeing one. On the basis of size alone there is one chance in ten that an ulcer smaller than a quarter is already cancerous; if it is larger than a quarter but smaller than a silver dollar, the chances are perhaps two to one that it is a cancer; if it is larger than a dollar it is almost certainly a cancer."

In view of the work done by these investigators it seems that the medical treatment of gastric ulcers is fraught with considerable danger and the safest method would be excision or partial gastrectomy as the size and situation of the ulcer demands. Most of us have had under medical treatment what we supposed was a benign gastric ulcer but as time went on was proven to be carcinomatous. In the hands of a competent surgeon the mortality is low and the results good in gastric surgery.

Medical treatment of duodenal ulcer is quite satisfactory if symptoms have not been present longer than a year. If symptoms have been present for over a year, the percentage of cures is small. Under careful treatment a chronic ulcer will almost disappear but it is difficult for the average patient to adhere to the rigid regime, and within a year the symptoms recur. Even obstructive ulcers will disappear to such an extent under treatment that the stomach may empty in normal time, yet we have never seen one cured.

In order to carry out Dr. Sippy's treatment verbatim as he so urgently insisted upon, requires willing assistants that are not afraid of work and a patient that does not mind expense. It is quite doubtful if his percentage of cures was higher than those of other gastroenterologists. There are very few patients that are financially and economically able to undergo hospitalization and have this followed by such a rigid treatment that their daily routine of work is considerably hampered.

There are as many diets for the treatment of peptic ulcer as there are physicians treating it. This matters little as long as the fundamental principles are correct. A smooth diet, where the cellulose and other rough elements of the food have been removed, and frequent feedings are the main point in treatment. Some gastroenterologists have depended almost entirely on diet, using very little medicine. With our present knowledge it would seem that nourishment given frequently is best. Some require rest in bed from one to six weeks during the first stage of treatment. This is followed by an ambulatory diet which the patient continues for a year. This diet consists of three moderate size meals with nourishment between meals. If pylorospasm is present, tincture of belladonna or atropine given three times a day to the physiological effect is helpful. An alkaline powder containing grs. xv to grs. xx at a dose is given half an hour after each nourishment and is repeated if the nocturnal distress appears. Numerous alkalies are used but probably the best are calcium carbonate and the calcined magnesia. In those patients that are constipated the calcined magnesia may be increased until one or two stools are obtained daily. Under this form of treatment the distress will disappear within twenty-four to seventy-two hours unless the ulcer is perforating.

Hardt and Rivers first pointed out the danger from too much alkalies. A toxemia appeared in certain cases, the symptoms of which were headache, dizziness, nausea, vomiting, pains in muscles and joints, and a nephritis. The blood urea, creatinine and carbon dioxide were considerably increased. Patients with renal complications are more apt to develop the toxemia. Later Shattuck, Rohdenburg and Booher showed that tertiary calcium phosphate and tertiary magnesium phosphate could be used successfully to neutralize the gastric juice, acting as local antacids and not as systemic alkalies. Loevenhart and Crandall have shown that calcium carbonate acts as an excellent antacid without causing any disturbance of the acid-base equilibrium or mineral metabolism of the body. It should be remembered that out of the total number of peptic ulcers treated with alkalies only a small number develop alkalosis.

Foci of infection in teeth, tonsils, accessory sinuses of the nose, and prostate should be eradicated. Eusterman has reported a number of cases where complete control of symptoms, including hemorrhage, has followed the extraction of abscessed teeth. Chronic appendicitis and chronic cholecystitis may also be sources of infection. Some authorities use vaccines made from organisms obtained from foci of infection along with the usual treatment.

When hemorrhage has occurred the patient should be given enough morphine and atropine to relieve the restlessness and produce drowsiness. If the hemorrhage has been severe the foot of the bed should be elevated. An ice cap to the epigastrium is used by many. Some do not allow anything by mouth for three or four days while others prefer to wait a week. The first stage ulcer diet is then begun using only small amounts at each feeding and giving the alkalies a half hour after each nourishment. Nutriment enemata are seldom used but glucose and normal saline by the Murphy drip method are valuable in keeping the fluid intake at the proper level. Styptics and substances to increase the coagulability of the blood are of little value. Gastric lavage is contra-indicated. If oozing persists a transfusion of 250 cc. to 300 cc. of blood by the direct method will often stop it. Should the hemorrhage continue a quick transfusion followed immediately by operation and eradication of the ulcer is indicated.

Sippy gave large doses of calcined magnesia and calcium carbonate every half hour for twenty-four hours, then every half hour during the day and every hour during the night. On the third day he resumed the first stage ulcer diet but used only an ounce at a feeding.

Except in young patients all gastric ulcers should have the benefit of surgery.

Gastroenterostomy in chronic duodenal ulcer will give excellent results in about 90 per cent of the cases. When successfully done the acidity in the stomach is reduced about 60 per cent. Bolton has shown that the acidity of the gastric juice is normally reduced by regurgitation into the stomach of the alkaline duodenal juices. When the gastroenterostomy does not function properly the acidity remains unchanged and stomatal or jejunal ulcers may occur. A stomatal or jejunal ulcer may appear in 2 per cent. of cases. When only gastroenterostomy is done a reactivation of the ulcer may occur or hemorrhage may recur. Excision of the ulcer or excision and gastroenterostomy will give the best results.

Partial gastrectomy for duodenal ulcer, such as some of the continental surgeons are advocating, seems very radical for a lesion as benign as a duodenal ulcer.

STATISTICS.

Within the past eight years at the Lexington Clinic there have been 529 gastric and duodenal ulcers; 78 per cent were duodenal and 19.7 per cent gastric ulcers; 1.8 per cent had both an ulcer of stomach and duodenum.

The oldest patient was 85 years old and the youngest 9 years old. Average age 42.

Males 71 per cent; females 29 per cent.

Vomiting was present in 39 per cent; hematemesis in 13 per cent; and melena in 14 per cent.

There were eight acute perforated gastric ulcers and 21 acute perforated duodenal ulcers. One chronic perforated duodenal ulcer with subdiaphragmatic abscess was present.

Of the 153 patients that came to operation, gastroenterostomy was done in 55.5 per cent. and excision of ulcer in 26.8 Gastroenterostomy plus excision, cauterization, gastrorrhaphy and resection were done in the remainder.

During the past four years there have been 100 operations for non-perforated ulcers with three deaths. One of these patients died of a lung abscess 37 days following operation. The other two patients died of pneumonia in one week after operation.

There were 29 acute perforated ulcers. Twenty-five patients were operated upon with 10 deaths. The average number of hours elapsing between the time of perforation and time of operation was 35 hours. Seven patients died of peritonitis; one died of toxic goiter; one of empyema and acute cellulitis; and one of shock. The latter patient was 74 years old and debilitated. One of the patients that died of peritonitis was 80 years old.

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ORIGINAL ARTICLES

NASAL ACCESSORY SINUS INFECTIONS IN RELATION TO DISEASES OF THE EYE, EAR, NOSE AND THROAT.*

By J. A. Stucky, M. D., Lexington.

It will be difficult in discussing the topic assigned me, to do so, without saying something of the etiology of these infections, but from my point of view which is somewhat at variance with that held by the majority, it is necessary to make this digression in my discussion. My aim shall be to present the topic from a purely clinical standpoint.

No more intimate relation could exist in the human body that that between the nasal accessory sinuses and the eye, ear, nose and throat. The same mucous membrane covers all just as the wall paper extends from one room to the other.

1. It must be borne in mind that the nasal accessory sinuses are primarily air chambers, and the moment their function as such is impaired, discomfort and disease result in proportion to the amount of interference of function.

2. Impairment of the function of the sinuses results in disease and is not primarily a definite pathology, but the interference of ventilation and drainage by partial or complete occlusion of the openings of the sinuses results in a negative pressure of the retained air and sweating and absorption of the natural moisture and this retained moisture (or secretion) if allowed to remain becomes purulent. For these reasons the most important thing to do in any condition resulting in impairment or occlusion of the natural openings is to adapt the treatment in such a way as to restore the function of ventilation and drainage without destruction or removal of tissue and with a minimum amount of trauma and irritation.

When the sphenoid and posterior ethmoid sinuses are involved we have the peculiar headache, heaviness and pain in the eyes with interference of drainage from the lacrymal duct and if this obstruction continues without relief long enough for the retention to become purulent, we may have from this foci of infection serious functional or organic impairment of the eye.

Infection of the anterior ethmoid cells and maxillary sinus also produces discomfort, and symptoms similar to those in involvement of the sphenoid and posterior ethmoid cells. The eye infections may be manifested in irritation or inflammation of the conjunctiva, swollen lids, lacrimation, photophobia and hypersection or the more serious involvement of the cornea or uveal tract—episcleritis, keratitis, iritis, or cyclitis. In some cases the septic involvement of sphenoid and postethmoid cells may extend to the point of producing alarming visual disturbance, through impairment or destruction of vision by extension of the disease by continuity of tissue to the optic nerve and uveal tract. The relation of nasal accessory sinus infection to the ear is principally through the Eustachain tubes, the only opening through which the tympanic cavity receives ventilation and drainage. On account of the relation of the nasal orifice of this tube, which is at the junction of the nasopharyngeal space just above the floor of the posterior inferior meatus, swelling of the erectile tissue of either the posterior or inferior turbinates or adenoid tissue, (lymphoid tissue) surrounding the orifice of the tubes, the opening is easily obstructed or closed. This causes impaired hearing, feeling of fullness and discomfort in the middle ear, which if not relieved may result in myringitis, or acute catarrhal or middle ear trouble. In active infections of the nasal accessory sinuses which have become purulent, if the nasal space is not kept free by cleanliness and ventilation, the muco-purulent infection is easily transmitted to the middle ear by improper blowing or cleansing of the nose. In this way many of the acute suppurative conditions and even mastoiditis can be accounted for. It is surprising how few people know how to blow their nose properly, and how careless the average medical man is in failing to teach the patient how to perform safely this important act.

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*Read before the Kentucky State Medical Association, Richmond, September 10, 11, 12, 13, 1928.

If the turbinates become swollen from any cause. insufficient air is allowed to enter the sinuses, the patient becomes for the time being a mouth breather and is not relieved until the cause of the trouble is removed. Acute swelling and irritation of the turbinates is usually due to irritation frequently from involvement of the anterior ethmoid-cells, infection or maxillary sinus.

Clinically the relation of the frontal sinus infections to the diseases of the eye, ear, nose and throat is secondary, because infections of this sinus are usually preceded by infections of the anterior ethmoid cells or maxillary sinus, extending to this sinus through the infundibulum or cribriform plate.

The extension from the accessory sinuses to the throat and naso-pharynx is by continuity of tissue, manifested by follicular tonsilitis, occasionaly peri-tonsillar suppuration, (quinsy) and pharyngeal myalgia. Clinically, my observations lead me to conclude that the relation of the nasal accessory sinus disease to diseases of the throat is a secondary factor and not primary. Admitting the correctness of the conclusions given what is the cause for the increasing number of nasal accessory sinus diseases and diseases of the eye, ear, nose and throat? We have felt they were due (in the majority of instances), primarily, to dysfunction or disease in the sinuses. Are these conditions air borne and are we made more susceptible by breathing the stagnant baked air in our office buildings and homes, or is it due to the lowered bodily resistance from another cause? My own clinical observations convince me that primarily involvement of the nasal accessory sinuses is not airborne, except in rare instances. I believe conclusive evidence of contagiousness is lacking and that the primary infection as manifested by coryza, sneezing, etc., all symptoms familiary known to us as bad colds, are not contagious in the first stage. In the mucopurulent stage, careless sneezing, promiscuous spraying the air with muco-purulent filth from the infected person, the disease may be infectious, but in the large majority of cases the source of the trouble is in some other part of the body, rather than the nasal accessory sinuses, and the symptoms of irritation and infection in the eye, ear, nose and throat are a local manifestation of a systemic condition, which if met promptly and active and vigorous eliminative and alkaline treatment with a non-irritating, antiseptic hypotonic solution used in the nose to cleanse and maintain ventilation and drainage, the large majority of cases will not become seriously involved by suppuration. If on the other hand it is true, that nasal accessory sinus infections are due to, primarily, lowered bodily resistance, what is the cause of the lowered resistance?

It is being daily demonstrated in the laboratory by able research workers, also by clinicians, especially pediatricians and internists that, "diet is the most important factor in establishing bodily resistance to infections. Well nourished, physicallly efficient persons are seldom sick except from epidemic disease and then the sickness is of short duration and the disease usually mild."

Epstein (1925) reports a number of cases of severe bleeding following the extraction of teeth. The condition being due to the fact the patients had been living on a faulty diet for several years.

Watson, in inspecting diets, where lunches were served at the schools, observed that various kinds of cakes and pies were offered. Inquiring the reason he was told that the children brought small sums of money to purchase lunch, that the cakes and pies were cheap and children preferred them to milk, green vegetables, soup and fruits. In one school pimento sandwiches, (made of white bread) were served by the "dietitian", being garnished in a most attractive way so that they sold like the "proverbial hot cakes." This kind of ignorance and neglect is being practiced in most of our schools and colleges all over the land. Principals and presidents seem so occupied with abstract matters of education they have no time to give to the important matter of science of nutrition, thus defeating in its fullness the primary object of a general education and the making of well, rounded citizens.

It is now known that rickets may be induced or prevented by any of three ways provided the experimental conditions were suitably chosen in each case. (1) By changes in amounts and proportions of calcium and phosphorus supplied through the blood. (2) By deficiency or abundance of antirachitic vitamins; (3) by deficiency or inadequacy of ultra-violet irradiation received from direct sunlight or vapor lamp.

Mellanby, (1923) shows that puppies fed, during development of permanent teeth, diets deficient in vitamin A, deformity of jaw bones, irregularity of teeth, more noticeable in lower incisors, delay in eruption of permanent teeth, interference with calcification of enamel also of dentine, with an abnormal development of tissues at gingival margin and periodental membrane. When these pups were given diets containing sufficient vitamin A with no other change in diet, the jaws and teeth became well calcified and regularly arranged.

McCarrison shows that subminimal provision of vitamin factors causes impairment of the assimilative, secretory and protective functions and may be etiologic factors in certain pathologic states appearing to be counterparts of those experimentally induced in animals.

Hoobler, (Jour. A. M. A., Aug. 4, 1928), says that next to human and cow's milk, sugar and syrups are common articles of diet for infants. Next to these are cereals, most of which are super-milled so that milk with possible addition of sugar or milled cereal with probably some orange juice and cod liver oil is the usual diet of infants in the United States for at least the first three months, and when these are analyzed for vitamin conten A, C and D are found but B only in limited amounts, in the milk and orange juice. Where then shall we get the necessary amount of vitamin B?

Daniels and Dean, (Iowa University) have found that the nasal accessory sinus diseases as well as enlarged tonsils and adenoids and middle ear and mastoid infection are due to deficient nutrition and upon feeding a balanced died, the sinus and ear trouble was relieved. The same kind of sinus, middle ear and mastoid infection was caused in rats and guinea pigs by deficient diet as occurred in the human and post mortem examinations, show it to be the same type of infection found in the children and adults using deficient diets. Eyermann, (Jour. A. M. A., Aug. 4, 1928), reports an interesting number of cases of food allergy causing nasal symptoms with the following conclusions: (1) Nasal allergy (vasomotor rhinitis) may be induced by ingestion of foods. (2) Some of the cases observed seem to indicate that either the simultaneous or sequential action of several allergens is necessary before symptoms occur. In some instances it would seem to be a matter of a total dose which controls the appearance or the severity of the symptoms. The total dose may result from a combination of inhaled and indigested allergens. This occurs in patients with either season or nonseasonal symptoms. (3) Nasal allergy as the result of ingestion exists with negative cutaneous reactions. (4) Nasal allergy due to ingestion can be determined by experimental manipulations of the diet, and clinical study following purposeful feedings of suspected allergens.

Weston notes that soils and conditions in certain sections producing vegetation suitable for raising live stock and bringing them to fullest development is reflected in the people of that section. Especially is this true as to stature, strength, endurance and resistance.

Prof. Hopkins, quoted by Dupain, 1920, was impressed by conduct of students in a large preparatory school in England. During the winter term the conduct was unsatisfactory, standards of play and work fell below normal, boys became listless, irritable, etc. Throats examined and other hygienic measures instituted but nothing came of it. Then the diet was looked into and it was found that they were receiving no uncooked foods, fruits or greens. When these were added to diet, no further trouble. They had been suffering from incipient scurvy, due to lack of vitamin C. Relieved by changing the diet. My observations and clinical conclusions agree with those quoted, and I am grateful at the opportunity of presenting these conclusions to the entire group of our State Association, especially to the general practitioner and "family doctor."

Increased knowledge brings increased responsibility. The higher training required by the national Boards before they will issue certificates to practice a specialty is a great step forward in organizing, unifying and establishing the specialties, and it is important that the medical profession and public be informed of the demands we make upon ourselves in the interest of improving our work. Specialties and specialists are coming into their own and it is our duty to make them and ourselves as individual members, what they should be.

In our profession as in others it is necessary that we learn some subjects fairly thoroughly and others that we should completely master. The basic subjects create the cleavage in the medical profession, the common ground on which we must all stand, etc. Among the most recent additions and most important have been physiological and biological chemistry. These in turn have become incorporated into the science of nutrition, and it is developments in this science that we must diligently follow, for regardless of what branch of medicine we practice, these two conditions, growth and development, must always remain subjects of our concern.

Recently we have learned much about circumstances and conditions under which infection takes place and we may arrange diet as to determine the kind of infection to which persons are subject. "This has brought us to the parting of the ways where we must determine whether we shall be content to treat defects and end-results by mechanical methods or whether we shall prevent and treat them in accordance with the newer knowledge and make of ourselves really scientific practitioners. Dietary deficiency which is sufficient to interfere with normal growth and development reacts unfavorably, often destructively upon the organs of special sense. We spend hours, days and weeks removing conditions and effects, but what are we doing in educational and preventive lines? Unfortunately, with too many of our profession, the establishment of the cause of any disease is of less practical moment than the discovery of some adequate treatment, though of course the finding of the cause usually precedes the working out of a reliable method of treatment.

We have not discharged our whole duty to our patient or the community when we have only done our best to ameliorate conditions for which we are consulted, but we must teach them how they can be prevented, as health counsellors and teachers of the science and art of living. It is expected of us to take up the doctor's burden and live properly ourselves that we may teach others, and it is well for us to prepare for this next step in evolution, for the step will be taken, whether we are ready for it or not, and if we have been one of the foolish virgins, the procession will move on and we will be weighed in the balance and found wanting. We should take the attitude of tempering enthusiasm with judgment and of waiting for sound and valid demonstration before we become unduly excited over new discoveries—such as bacteriophage and phagotherapy. These seem now to have reached a stage where we have reason to feel that we are on the eve of revolutionary announcement in the field of biology and medicine.

Some are visualizing the day when all human beings will be immunized in childhood against every known type of micro-organism that is likely to attack them, so that our descendants will live in health, until they die of old age, or as a result of accidents. I am not one of these. For centuries the race has been getting farther from rational living, and the returns will be slow but sure.

Traumatic Paralysis of Femoral Nerve.—Demerliac and Frejaville describe a case of paralysis of the femoral nerve following a fall on the hip and accompanied by the reaction of degeneration of the femoral nerve, by sensory disturbances in the skin area supplied by the nerve, by impotence and atrophy of the quadriceps femoris muscle, and by abolition of the corresponding patellar reflex.

THE EYE IN RELATION TO HEADACHE.*

By W. A. Weldon, M. D., Glasgow.

In the management of a large practice the doctor commonly makes his diagnosis in the first few minutes of an examination, from perhaps one, two, or three symptoms. The laborious methods of inductive reasoning, so often taught in medical schools do not fit in with a large practice. The mode of cerebration is personal and differs in everyone, hence the general tendency for most of us to associate two or three symptoms as a short cut to a diagnosis. As the eyes are responsible for 40% of all chronic headaches, without a manifest cause, the shortest cut to a diagnosis is usually by the examination of the eyes.

Headaches may be divided into three classes: Toxic, mechanical, and reflex. These may be subdivided into acute, chronic and recurrent. Most all toxic headaches are acute, and occur in such conditions as typhoid fever, pneumonia, influenza, etc. Mechanical headaches are due to a change in the intracranial pressure such as brain tumors, brain abscesses, lumbar punctures, and such like. It is the reflex type of headache that concerns the eye doctor, and is usually chronic. When we consider that there is nothing more distressing or nerve racking than a constant nagging headache, it behooves us as diagnosticians to classify our headaches in such way that we are able to give the rational treatment, or direct them in the proper channels for treatment. It behooves us as eye doctors to go over our cases thoroughly, not merely testing their vision, but searching for some hidden muscle imbalance, or eye disease as iritis, retro bulbar neuritis, and glaucoma.

Errors of refraction are the most common cause for eye headaches and I might say just here that, contrary to the opinion of most diagnosticians, small errors are a more frequent cause than large ones. This is due to the fact that in small errors it is possible, with a certain strain on the ciliary muscle, to maintain distinct vision, while in large errors it is impossible, even with a strain to focus the image on the retina. Therefore, the eye ignores the image altogether and the ciliary muscle ceases the attempt. This is similar to a strong man carrying a heavy load, his muscle soon becomes fatigued, but if unable to lift the load, will not long continue the effort.

Hyperopia, hyperopic astigmatism, and mixed astigmatism are the errors that produce most eye headaches. The pains are usually bilateral, and in order of frequency perhaps, 1st, supraorbital; 2nd, deep orbital; 3rd, frontoccipital, and 4th, temporal. The headache is usually worse after using the eyes, and especially for near work . The patient often complains that the words blur and letters run together. There is usually a redness of the conjunctiva which causes a burning, and itching of the lids. Nausea, and sometimes vomiting occurs, especially so if the headache is bitemporal. However this is not an unusual symptom of all temporal headaches.

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*Read before the Kentucky State Medical Association, Richmond, September 10, 11, 12, 13, 1928.

For these headaches there is one and only one treatment, carefully and properly fitted glasses, with the ciliary muscle completely relaxed under the influence of a cyclopegic if the patient is under forty years of age. If over forty, other methods can be used. Not always will the patient get immediate relief from glasses, as the ciliary muscle is overdeveloped from hyperactivity and will not relax gracefully. Therefore the patient should be advised by the eye doctor and diagnostician as well, that it will be necessary to wear the glasses for a while to secure the desired results.

Around forty-five many people suffer from headaches, with perfectly normal eyes, due to presbyopia.

Anisometria or marked difference in the refraction of the eyes give rise to headaches. These can in most instances be relieved with glasses.

Myopia, or nearsightedness rarely produces headaches. This is due to the fact that the rays of light focus before reaching the retina and the ciliary muscle is seldom called into action. With myopia we have tired eyes and blurred distant vision.

Next to errors of refraction perhaps muscle imbalance would be the most common cause for eye headaches. By this I do not mean squint, one eye turning out or in, up or down, but those cases where the eyes on superficial inspection look perfectly normal, and vision good. But in order to accomplish binocular vision, some of the extrinsic muscles are on constant tension. This is known as shoppers headache, coming on usually after an automobile ride, a trip around the city, to the moving picture show and etc. These headaches in most instances are occipital, but may be located anywhere in the head. These cases are not so frequently relieved with glasses.

Of eye diseases which produce headaches perhaps glaucoma is the most common, and most insidious. It usually takes the form of unilateral trigeminal neuralgia of the first and second branches, beginning in the temporal region and spreading to the frontal. There may or may not be occular inflammation. The pupils may or may not be dilated. It occurs in people past forty and most frequently between fifty and seventy years of age. Delay of treatment is a grievous error, because unless treatment is instituted early, blindness results. In all people past forty suffering from a unilateral headache, following the course of the fifth nerve, a thorough examination of the eyes is absolutely necessary. These headaches are usually relieved temporarily by the instillation into the eyes of eserine or pilocarpine, but should always be referred to the eye doctor.

Iritis, retrobulbar neuritis, choro-retinitis, etc., give rise to headaches that time permits me only to mention.

I realize that most eye doctors are prone to regard all headaches as due to some occular disturbances. But equally true, most diagnosticians hold the opinion that headaches have their origin in some other part of the body. Of course both are wrong, a certain number of cases presenting themselves to the opthalmologist with headaches must be referred to the diagnostician for a complete examination and diagnosis. On the other hand the diagnostician who fails to recognize those cases of headaches from eye defects, falls far short of his name. I know of some diagnosticians that never attempt any kind of an eye examination, but refer all suspected cases to the eye doctor. This is commendable but not always practical and necessary. I know other good diagnosticians who attempt a superficial eye examination, but invariably go wrong. They advise the patient in such a way that it makes it difficult and sometimes impossible for the eye doctor to control the situation.

I believe that all diagnosticians should make a routine superficial examination of the eyes in cases of obscure headaches. The following is the way that has been suggested, which I believe to be practical and of diagnostic value First, inspection, examine the lids, conjunctiva, cornea, and pupils. Second, examine the eye with the ophthalmoscope, in order to determine the condition of the media, and fundus; if the fundus is normal, and the media clear then proceed in the following manner. Have the patient sit twenty feet distance from a well illuminated Snellens test type and testing each eye separately ask the patient to read the lowest line possible. If able to call all letters in the 20-20 line, you are dealing with an emmetrope, one with normal vision or a hyperope. Now place before each eye separately a plus 50 sphere, and ask the patient if it is better or worse; if he says "worse," more than likely you are dealing with one with normal vision, if he says "there is no change" or 'it is better", you are dealing with a hyperope or perhaps hyperopic astigmatism, a common cause for headache. If patient is unable to read 20-20 line without the plus 50 sphere you are dealing with hyperopia, far sightedness, or myopia, nearsightedness. Now place before each eye separately a plus 50 sphere and again ask the patient if it is better with the sphere or without the sphere. If he says "better," you are dealing with some form of hyperopia, if he says "worse", you are dealing with myopia, which rarely produces headaches. Now have the patient look at the astigmatism chart. If he says that some lines are darker than others, you are dealing with astigmatism, another common cause for headaches.

Many diagnosticians fail because they do not use the plus 50 sphere, taking it for granted that a vision of 20-20 means no refractive error and assuring the patient that his eyes could not cause the headaches, as he had normal vision. They fail to take into consideration that his distinct vision may be maintained only at the expense of stran of the ciliary muscle, which is a most frequent cause of headaches.

After you have determined in your own mind that the patient has a refractive error which might produce headaches it is well that you refer the patient to the eye doctor for a thorough examination, at the same time suggesting to the patient that it might be necessary for him to wear glasses. This assures the patient that you have knowledge of his condition, and prepares the way for the eye doctor. This many times prevents the accusation brought against all ophthalmologists some time or other, that they fit glasses for mercenary reasons.

Carbohydrate Fattening Treatment for Undernourished Diabetic Patients.—Adlersberg and Porges discus further their method of treating diabetes with a fat-poor diet. Their experience is in accordance with the hypothesis that deposition of glycogen in the liver increases the capacity of the latter to fix sugar, while deposition of fat diminishes it. They found that overfeeding with carbohydrates and simultaneous limitation of fats in the diet resulted in improved metabolism as well as in considerable gain in weight. In some cases the fat-poor, carbohydrate rich diet brought about an actual increase in tolerance; it lowered the blood sugar level; in other cases it decreased glycosuria by increasing the density of the renal filter.

PHARMACOLOGICAL EFFECTS WHICH MANIFESTLY POINT TO AN UNDERLYING ELECTRICAL MECHANISM.*

By R. Beutner, M. D., Louisville.

A year ago, I had the privilege of presenting my theory according to which drug actions are brought about by electrical disturbances in the nervous system.

A drop of voltage can be shown to occur following the addition of an alkaloid in an artificial system which reproduces the electrical conditions of the tissue. The conclusion was drawn that the same occurs in the tissue itself, preferably in the nervous system.

Such an idea is incompatible to vitalistic tendencies which still play a great role. It may even appear phantastic to some. To justify my viewpoint, I beg to refer to the modern work of R. S. Lillie which proves that stimulation is essentially an electrical process. The propagation of electrical stimulation in iron wire model resembles the propagation of the nervous impulse in all details. Stimulation can be described, therefore, as consisting of an electrical polarization, which means a change of preexisting electromotive forces in tissues.

Textbooks of physiology describe a mechanical, a chemical, a thermal and an electrical type of stimulation. While this is correct it would seem now that chemical actions and others stimulate only by causing electromotive changes secondarily.

The question arises: how can chemical actions leading to stimulation produce electrical changes in tissues.

This question is answered by the study of artificial systems as those described in which stimulating potent alkaloids produce electrical changes, if added in extrême dilutions, 1 : 1 million or less.

The electromotive theory of drug action is therefore not at all as unusual as it may appear at first sight. It is in reality an application of well established physiological theories to pharmacology.

Another side of the problem is to find peculiarities of drug actions which can be traced to an underlying electrochemical mechanism.

1. A peculiar drug action the cause of which can be traced to an underlying electro-

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*Read before the Jefferson County Medical Society.

*From the Department of Physiology and Pharmacology, School of Medicine, University of Louisville.

chemical mechanism, is the so-called augmentor effect by which is meant an increase of pharmacological action following the addition of a substance which per se has no pharmacological action at all.

An effect of this type can be observed on the isolated intestine using the Magnus technique as described by Storm van Leeuwen. E. g. the constricting effect of pilocarpine is increased by the addition of sodium oleate although sodium oleate does not stimulate at all. *This occurs within certain limits of concentration only* the addition of about 1 mgm. of sodium oleate to 30 cc. of tyrode solution in which the gut is suspended will augment the constricting action of pilocarpine, but, with 5 mgm. or more of oleate added, pilocarpine constricts no more than without any oleate.

2. This augmentor effect can be explained by the electromotive theory of drug action as it can be reproduced in its details in the artificial system which reproduces the electrical conditions of tissues an increased drop of the e.m.f. is brought about by pilocarpine if sodium oleate is added and this occurs within a definite range of concentration only. E. g. the potential difference at the junction of NaC1 solution and nitrobenzene plus 10% oleic acid drops 6 millivolts if 0.2 mgm. pilocarpine HC1 is added to the NaC1 solution (100 cc.).

Upon repeating the experiment with an addition of 20 mgm. of oleate to the NaC1 solution, 0.2 mgm. of pilocarpine HC1 caused a drop of 20 millivolts.

With the addition of 200 mgm. of oleate the drop was 8 millivolts which may be considered identical with those 6 millivolts observed in the absence of oleate.

This shows that an increase of electromotive drug action occurs within a certain range of oleate concentration only, in a similar way as an increase of toxic drug action occurs within a definite range of oleate concentration.

None of the older pharmacological theories can explain the augmentor effect in its details.

DISCUSSION.

W. Hamilton Long: I am very much interested by what Dr. Beutner has said. I believe we are on the verge of some very important revelations in regard to the action of those drugs which produce unconsciousness. I refer not only to anesthetic agents but to that large group of drugs known as opiates, alcohol, etc., and also the mechanics of unconsciousness produced by pathological conditions and not by the administration of drugs.

There are at least two dozen theories which have been offered to explain the action of anesthetic drugs. The one most generally taught is the lipoid solvent theory, but this seems to have been overthrown by Drs. Butts and Tyler, of Philadelphia, who have been doing some important work along this line. Dr. Beutner does not seem to think there is much similarity between his theories and those propounded by Butts and Tyler. It is possible that the electrochemical theory will eventually explain why people become unconscious.

Dr. Lundy of the Mayo Clinic, is now on the verge of expounding a new theory as to the action of narcotic and anesthetic agents. I believe it will be definitely known within the next few years just how such drugs act, and when the discovery is made it will probably be found very simple.

I hope Dr. Beutner will continue his experiments and give us further information later.

Henry G. Barbour: Dr. Beutner's paper is very interesting, and the ideas he has expressed are far in advance of present-day pharmacological and physiological knowledge. His experiments have shown definitely that the effects of pilocarpine in stimulating tissue reaction can be imitated in "stimulating," i. e., causing a change of potential in his artificial system. In both cases this action occurs only when sodium oleate is added in proper concentration. By using the artificial system described Dr. Beutner has produced some wonderful results, especially the profound sensitivity to "poisonous" alkaloids not seen with harmless salts.

Chemical Reaction for Pus in Urine.—On the ground of its simplicity, Keesiakow recommends the following test: The urine is shaken or the sediment only may be used. Six or 7 cubic centimeters of the urine is placed in a test tube; 3 or 4 drops of ammonia is added. The test tube is inclined a few times but not shaken. From 1.5 to 2 cc. of hydrogen perodixe 24 per cent is added; the test tube is not shaken. If the urine contains pus cells, the hydrogen peroxide is decomposed and the consequent liberation of oxygen causes foam to form. The reaction is positive if within one and one-half minutes 1 mm. of foam forms over the entire surface of the urine in the test tube. If the amount of pus is large, the entire tube may be filled with foam. In performing this test it is necessary to distinguish between male and female urine, since it is normal for the latter to contain some pus cells, the presence of which will result in a layer of foam from 1 to 1.5 mm. in thickness. If the urine in the case of a woman is obtained by catheterization, this difference, of course, does not exist. Urine containing blood also gives a positive reaction.

IODINE IN THE TREATMENT OF GOITRE.*

By W. O. Johnson, M. D., Louisville.

Early in Greek history we find the first use of iodine in the treatment of goitre. The Greeks used the ashes of burnt sea sponges for this purpose, achieving results, without the knowledge of the active principle contained in the ashes.

Although iodine was discovered in 1812 by Cortois, it was not until 1819, that Condet Sr. of Geneva reported the reduction in the size of goitre by the use of Tr. of iodine. In 1856, Chatin observed the prevalence of goitre in localities where iodine content of the soil and water was low.

However, very little was known regarding the action of iodine on the thyroid gland until 1907 when Marine and Lenhart began their work, and in 1911 they used iodine in the treatment of hyperthyroidism, showing the importance of the drug, and explained that the effect produced was the bringing about of an involution of the hypertrophy and hyperplasia in the gland to a colloid or resting state. The use of this knowledge has resulted in bringing about a lower morbidity and mortality, in the surgical treatment of the diseases of the thyroid gland.

It was left for Plummer in 1923, to popularize the use of iodine in the treatment of goitres, but as an outcome of this widespread popularity there has been shown to be certain limitations in its use.

It is well to bear in mind, before we enter further into the discussion, that iodine may be used in the following types of goitres, namely: Adolescent goitres, goitres of pregnancy, exophthalmic goitre, toxic adenomata, and thyroiditis, and I will outline the iodine therapy in the above mentioned order.

For clarification of this subject we may divide goitres into two groups: (1) The deficiency group of goitres of adolescence and pregnancy and simple goitres, and (2) Hyperplastic group, where there is believed to be an over production of a toxic compound.

There is no essential relationship between the two groups, as is shown by the fact that the lower animals are as susceptible to simple goitre as is man, and the simple goitre can be produced experimentally in both, whereas exophthalmic goitre does not occur in the lower animals and has not been produced experimentally.

We know that the maximum store of iodine in a normal human thyroid is approximately 25 mg. or 1 mg. of iodine for every gm. of fresh gland, and that when this iodine store falls below 0.1% there is an increased vascularity of the gland with associated hypertrophy and hyperplasia of the cells. This enlargement may be uniform or nodular and is called clinically simple, or adolescent goitre.

Simple goitre is found during (1) fetal life, (2) puberty, (3) pregnancy and lactation, and (4) at times during menopause.

As Marine has stated, simple goitres occur during the periods of life when growth, differentation and energy transformations are the greatest.

We may also say that the cause of simple goitre, centers about the supply of iodine in the thyroid gland, and that during these above mentioned periods in a woman's life the need of iodine is greater. Therefore, by supplying iodine in amounts that will satisfy the physioogical needs of the body the disease will be controlled.

Simple, adolescent, or physiological goitre may occur in all races, climates or inhabitable altitudes, and is found in greater proportions in goitre belts, but may be found isolated in institutions, garrisons and schools, or scattered sporadically over the entire world. With the present methods of transportation and the prevalence of travel, people from goitre districts migrate more than formerly, thereby making the boundaries of the goitre districts less distinct which results in an increasing number of adolescent goitres in all localities. This is shown by public health reports.

In spite of the knowledge that simple goitre is a manifestation of a deficiency disease depending on a relative or absolute deficiency of iodine in the gland, it was not until 1910 that prophylaxis of goitre was first instituted on a large scale by Marine and Lenhart, and again in 1916-19, by Marine and Kimball. These men in their extensive work, treated the goitres of 2190 school children between 7 and 15 years of age, and showed that only one in 438 of these treated developed enlargement of thyroid gland. While in the 2,305 who were not treated with iodine one in five developed goitres or almost 400 times as many developed goitre without treatment as did those under treatment. From their work certain inferences may be made: That in endemic goitre districts the preventive treatment of goitre should be administered to all children between the ages of 8 and 16 years, and in other areas to children whose mothers have a goitre, or in such children between the ages of 8 and 16 years, where visible or palpable enlargement of the thyroid is present. This should at all times be done under the supervision of the physician, with a check on the general condition of the patient at least every six months, or more often if necessary.

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*Read before Kentucky Midland Medical Society, October 13, at Frankfort.

The only precaution necessary is in the cases of adenomata of thyroid in adolescence, which constitutes about 3% of the goitres in children. In these cases iodine should be given with caution or best not at all, because it does not relieve the condition and produces a hyperthyroidism by its continued use.

In the extensive work among the school children in Akron, Ohio, 30 gr. of sodium iodine was given over a period of two weeks, each Spring and Autumn. This form of iodine medication has some objectionable factors, in that it has a bad taste, which is a point of note in the treatment of children. The gland is suddenly saturated with iodine and the iodine is almost as quickly removed, this may be a precipitating shock that will cause the production of hyperthyroidism. It seems more logical to administer a small amount of iodine over a longer period of time, which will more nearly approach the physiological activity of the gland.

The syrup of iodine of iron was first used in this sense, and it is a satisfactory method but for a few minor exceptions: (1) It is unpleasant to take, (2) it stains the teeth, and (3) in warm weather the solution precipitates and an indefinite quantity may be obtained, because of this, the usual dose is one drop of the syrup of iodine of iron, less than the age of the patient, up to 15 drops, this is to be given each morning with breakfast on alternate months during the year, through the years from 8 to 16.

Recently a staple preparation which eliminates all of the above mentioned objectionable factors has been prepared for this purpose. It is in a chocolate coated pill containing 10 milligrams of sterate of iodine, and so far this preparation has been most satisfactory. One pill is to be taken each week continuously from the 8th to 16th year, and they may be obtained in boxes of 52 each.

This prophylactic treatment must always be controlled by periodic observations of the general condition of the patient by the physician.

The prophylactic treatment to date is by far the most important step in the solution of the goitre problem, for by this means the simple goitres, foetal adenomatas can be entirely controlled, thereby markedly reducing the possibility of the other types of goitre.

A more advanced form of prophylaxis has been instituted by the administration of iodine in goiterous districts to pregnant women, who have simple goitres or a goitre history in the family. In these cases the iodine should especially be given during the latter months of the pregnancy and in small doses, to prevent the continued enlargement of the goitre in the mother, and especially to prevent the development of foetal adenoma in the child. This is most important in these cases in which pregnancy follows a thyroidectomy.

The simple goitres of menopause are usually adenomatous in type and should not be treated with iodine, unless they are being prepared for surgical operation upon the thyroid. For it has been conclusively shown that these patients develop hyperthyroidism, not only by the continued administration of iodine, but that the use of iodized salt alone will light up an already present but quiescent adenoma.

The use of iodine in the groups of cases that have an over secretion (exophthalmic goitre and toxic adenoma) is still in somewhat of a state of confusion in the minds of some and much has been written on the subject.

Plummer has advanced a theory, which simplifies the understanding of the working process. He states that in exophthalmic goitre the iodine compound is an unsaturated toxic compound and by the administration of iodine, in the form of Lugol's solution, this unsaturated compound is made a saturated non-toxic compound. This theory is satisfactory to a certain point but it does not suffice to correct the toxin to the extent of being a curative agent, as shown by the fact that 68% of the cases of exophthalmic goitre treated medically in the Lakeside Hospital in Cleveland during the years 1923-25 of their own accord later sought surgical treatment as a cure of the disease.

Bauer of Vienna says that iodine should be given to exophthalmic goitre patients only when the administrator has a knife in his hand: in other words, with adults iodine should only be used in preparation for surgery and by its proper preoperative use the operative mortality in exophthalmic goitre cases has been reduced from 3% to 0.7%.

In cases of hyperthyroidism the patients are best and most quickly prepared by the administration of 15 min. of Lugol's solution, 3 times daily, in a small amount of milk, and the maximum benefit of the iodine therapy will generally be obtained in 14 days as indicated by a reduction in pulse rate, lowered basal metabolic rate and a marked improvement in symptomatology.

When the patient has reached the maximum benefit of the drug, perform the operation, under novocain local anesthesia and light gas analgesia.

Immediately after the operative procedure

45 min. of Lugol's solution, in equal quantity of milk is given per rectum, and at 4 p. m. the day of the operation 30 min. more of Lugol's solution is given in same manner. Following this Lugol's solution is continued by mouth 15 min. 3 times daily for 3 days following the operation or until the reaction has subsided.

Prolonged iodine medication may be said to be comparable to the administration of morphine in cases of acute appendicitis. It masks the symptoms, does not cure the disease and allows the disease to become deeper rooted into a failing constitution which makes it more difficult to cure, and the results are less satisfactory.

If the iodine therapy is continued for a longer period of time than 14 days in most cases of exophthalmic goitre, the condition remains somewhat stationary for 20 to 30 days, and then there begins a gradual but progressive rise in pulse and basal metabolic rate and the subjective symptoms reappear. The progression is then only influenced by the remissions of the disease or surgical intervention.

When surgery is instituted in cases so treated, at this point the reaction following the operation is as severe as it is with patients in which no Lugol's solution has been given, and the mortality rate is as high. For once the therapeutic effect of iodine has been obtained it is rarely ever reproduced, and then only after a period of six months without iodine.

Some surgeons do not administer Lugol's solution to patients that have to be ligated but withhold iodine therapy until the time of preparation for thyroidectomy.

The question of iodine therapy in exophthalmic goitre is decidedly nearer standardization than in the so-called toxic adenoma. Iodine therapy in the majority of cases of toxic adenoma produces just as good results as in exophthalmic goitre cases, and in the Cleveland Clinic the two diseases are treated with iodine in the same manner.

Some of the misunderstanding about the proper treatment in the toxic adenoma case is a result of improper understanding of the individual as a whole. In the toxic adenoma cases the proper medical preparation from the standpoint of the heart and general condition is far more important than the effect of the iodine therapy. For these cases seldom show the severe reactions noted in exophthalmic goitre patients in which iodine has played such a prominent part in reducing, but the mortality is practically always a result of failure of heart, kidneys or embolism.

Therefore iodine therapy has to be administered in these cases according to the cardiac and general condition of the patient. If it is estimated that 3 to 6 weeks are required for preparation, then 10 min. of Lugol's solution is given 3 times daily, so as to have the estimated maximum effect of the Lugol's solution, at the time when the patient is ready for operation.

If the heart is good, which seldom occurs in these cases the full dose of Lugol's solution can be given as in exophthalmic goitres. In the toxic adenomata cases the maximum effect is usually obtained on the sixth to the tenth day.

It is in the adenomatous goitres that iodized salt has played such havoc, in the production of hyperthyroidism. Also these cases are allowed to go longer undiagnosed or untreated and it is in this group that the myocardial complications are greatest. As Kocher has said: "A goitre patient is sick because of his heart and dies because of his heart." This is certainly true of adenomata. From 45 to 60% of cases of toxic adenoma have myocardial changes present before operation, and it is in this group that the mortality is highest. In these cases there are a few instances that are refractory to iodine therapy and some even become worse under it. In these cases thyroxin 1-60 gr. or thyroid extract 1 gr. 3 times daily may be given for a short period of time to stimulate the gland and then the iodine therapy is usually beneficial.

In cases of thyroiditis the patient is treated as a case of exophthalmic goitre with administration of smaller doses of Lugol's solution during the active stage of the disease, and then discontinuing the medication when symptoms of hyperthyroidism become quiescent, because in these cases one usually waits for six months after the subsidence of the acute infection, before operation. The iodine in these cases is used only to arrest the progress of the hyperplasia in the thyroid as a result of stimulation by the infection. When the cases have reached the period of operability their general condition is seldom grave and the problem is rather that of preventing further destruction of the gland by the infection than relieving the patient of the toxemia.

In cases of malignancy iodine is of no use. Because of the necessity of extensive removal of the gland, there is rarely any thyroid tissue left, and usually only thyroid extract in large doses bring about satisfactory results.

Summary.

Iodine administration in small quantities to children between ages of 8 and 16 years is a very efficient preventive of simple goitre.

Iodine should never be prescribed in adolescent goitres that contain adenomata, because of its production of hyperthyroidism in these cases.

Iodine should be administered to pregnant women for prevention of colloid goitre in the mother and more especially for prevention of foctal adenoma in the child. But extreme caution should be used in its administration, for the thyroid gland at this time is quite unstable and hyperthyroidism is easily produced.

The continuous use of iodine over a long period of time would never be prescribed for adults, especially those with adenoma, except in preparation for operation on the thyroid. For in occasional cases in which there is a temporary improvement, the patient will be lulled to the false security of a believed cure, and eventually a marked overactivity of the gland will result.

Iodine should not be administered to a patient who has recovered after a thyroidectomy, unless hypothyroidism exists, even in these cases thyroid extract is usually more satisfactory.

The indiscriminate use of iodine in forms of iodized salt and drinking water is inaccurate and too dangerous a method of applyng a preventive measure to a disease so grave and so prevalent as goitre.

ENCEPHALITIS (TYPE OF STRUMPEL-MARIE): REPORT OF CASE.*

By James W. Bruce, M. D., Louisville.

Patient, Betty S., female, white, aged two years. Family history: mother and father and all four grandparents living and well. One brother, aged six months, in good health. No history of miscarriages. Personal history: the patient had always been well, but was somewhat constipated.

Present illness: On Thursday afternoon, April 19th, 1928, the child seemed feverish, but the next morning she appeared bright and well. Friday afternoon she again seemed feverish and a physician was called. He thought it was an intestinal upset and instituted treatment accordingly. At eight o'clock that night she began to have generalized convulsions which continued until three o'clock Saturday morning. Spinal puncture at 1:00 a. m. Saturday gave clear fluid under increased pressure. The fluid was not preserved as there was no possibility of getting it examined at that hour. Withdrawal of spinal fluid had no effect on the convulsions.

Spinal puncture at nine o'clock Saturday morning gave blood-tinged fluid (traumatic) under no pressure. Examination of this fluid showed cells 22, lymphocytes 95 per cent no organisms. Throughout the day Saturday she had a temperature of 103° to 104°F. (rectal). Several times she vomited a thick, reddish-black material. No convulsions until five o'clock in the afternoon, when a clonic convulsion began involving the right arm, shoulder and face. This lasted for several hours. At six o'clock the same afternoon her respirations suddenly ceased, and artificial respiration was necessary for some time. After two hours the respiration had become normal and regular.

Sunday (April 22nd) there were no convulsions and the child seemed stronger, although there was no evidence of returning consciousness. Temperature range on that day 100.5° to 101.5°F. (rectal), pulse 120 to 140, respirations regular, 35 to 40. During Sunday night there were several clonic convulsions involving the right arm and face and lasting several minutes. Monday these localized convulsions continued throughout the day. At 11:00 a. m. respirations became very slow, irregular, and shallow. At twelve o'clock (noon) the pulse, which had been regular at 120 to 140, declined to between 80 and 90 and became somewhat irregular. Carbon dioxide and oxygen inhalations were used at this time, and under their influence respirations became deeper and more regular. Spinal puncture gave 6 cc. clear fluid under no pressure; cell count 50, globulin ++, sugar 80 mg. At 2:30 p. m. 80 cc. of 50% glucose was injected into the femoral vein, and within twenty minutes the pulse had risen to 140 and respirations had become deeper. At 9:00 p. m. the pulse was 120, respirations 40, temperature 101°F. (rectal). At 2:30 a. m. Tuesday she suddenly ceased breathing and could not be resuscitated.

During the entire illness the child was in deep coma. For the last twenty-four hours of life there were intermittent periods of convulsions involving mostly the right arm and shoulder, sometimes the left arm, and occasionly becoming generalized.

Physical examination four hours after the onset of convulsions showed a well-nourished and well-developed child in deep coma. The pupils were dilated and fixed, left eye deflected outward and slightly downward, the eye grounds contained numerous small hemorrhages, but the margins of the discs were clear. This condition of the eyes remained the same throughout, except on Monday, (third day of illness) the nasal margins of the discs were slightly hazy. The ear drums were of normal color. There was no edema of the face. Mouth: tongue coated; tonsils large, red, swollen, and several white follicles were present on each. Appearance of the tonsils greatly improved toward end of illness. No enlargement of lymph glands anywhere. Chest: heart normal in size and position, rate regular, no murmurs; lungs normal. Abdomen slightly distended, soft, no masses nor rigidity. Extremities negative. Reflexes: pupils did not react to light after the first few hours; occasionally a sluggish reaction could be seen. Knee jerks exaggerated; ankle jerks could not be elicited because the gastrocnemius muscles were in spasm all the time. Babinski sometimes present, sometimes not; no Kernig, no stiff neck, no Brudzinski.

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*Read before the Louisville Medico-Chirurgical Society.

Urinalysis, Saturday morning, April 21st: Urine clear, color straw, specific gravity 1010, reaction acid; albumin ++, sugar trace, acetone trace. Microscopic examination: few erythrocytes and granular casts. Sunday afternoon: albumin a trace, sugar trace. Microscopic: few casts.

Treatment was directed for the first eight hours toward controling convulsions with chloroform and luminal, and hypodermatic injections of magnesium sulphate. After the child vomited the reddish-black material the stomach was irrigated and a large quantity of mucus tinged with blood was recovered. Also a large amount of green fluid and mucus was removed by rectal irrigation. Water and dextrose were administered freely by nasal tube.

The matter of diagnosis in this case raises a number of interesting questions. The first time I saw the child she was having generalized convulsions which had persisted for four hours, fever, etc., and I was impressed with the fact that it was a case of toxic convulsions which we sometimes see in children. However, when convulsions last as long as that, and particularly when they showed a tendency to become localized,—these convulsions involved mostly the muscle group of the right arm,—it is evident there is something else wrong. We then thought there might be an embolic process within the cerebrum involving the left cortex, especially later when pressure symptoms involving the respiratory and vagus centers developed. When these became manifest we realized there must be intracranial pressure, possibly from edema, to give rise to pressure on these centers. We then began to think of encephalitis although the symptoms were not typical. However, we finally arrived at the conclusion that the child had encephalitis.

The response to glucose injection was quite remarkable. The child was very ill, her pulse had receded to between 80 and 90, and was irregular. Within twenty minutes after the injection of glucose her pulse had resumed its previous rhythm at 120 to 140. Respiration also improved and became deeper after glucose injection.

If this case was one of encephalitis, there are two features I cannot understand: (1) the vomiting of blood-tinged fluid, (2) the petechial hemorrhages into the retina. Strumpel and Marie have described a type of encephalitis seen in young children which follows the same clinical course this case did; sudden onset with fever and convulsions followed by paralysis which was likely to be permanent. I believe that was the type of the disease in the case reported. I never saw one just like it before, and would be glad to hear particularly from the eye specialists about the cause of the petechial hemorrhages in the retina. There were no petechial hemorrhages anywhere else.

DISCUSSION.

L. W. Neblett: As Dr. Bruce has stated, this child was robust and healthy in appearance, but had suffered from constipation since a baby. I knew the family intimately and had seen the child frequently.

On Thursday she had slight fever and was given a dose of castor oil. Friday she was apparently well until afternoon. When the family called me at six o'clock p. m. the child had a temperature of 104°F., but did not appear very ill. I asked the mother to give her an enema, administered another dose of simple laxative, and asked them to inform me in about an hour whether the child had a fecal evacuation. The abdomen at that time was slightly distended.

They called me within an hour stating that the child was evidently having considerable pain. When I reached the house her temperature had receded to 101°F. There had been no results from the enema, the water returned perfectly clear. I told the mother to give the child another enema, and to telephone me later.

Within twenty minutes the child began having generalized convulsions and they immediately sent for me. I reached the house shortly afterward and remained there from Friday night at 8:30 until the child died. I was not out of the room more than fifteen or twenty minutes and watched her very closely. The convulsions were at first generalized but later became localized to certain muscle groups. At intervals she would have flexnor muscle group spasm followed shortly by an extensor spasm.

Dr. Bruce was called in consultation and examined the eye grounds within six hours from the time I first saw the child, and within seven hours from the onset of symptoms petechial hemorrhages into the retina were noted.

At two o'clock Friday she began vomiting reddish-black material,—typical coffee-ground material,—resembling the vomitus of malignant disease of the stomach. All this time we had been almost continuously irrigating the lower intestinal tract without any definite result. Gastric lavage was also practiced at frequent intervals. The eye grounds showed petechial hemorrhages distributed over the entire fundus of both eyes. There was paralysis of the third cranial nerve, ptosis of left upper eyelid was present, and the left eye deviated downward and outward. The right eye showed slight reaction to light, the left eye never did from the first. Gastric lavage was started when we noticed the character of the vomited material. Lavage was continued until the water returned clear, and for fifteen or twenty minutes there would be no vomiting. She would then have another attack of vomiting of similar material which indicated that it was regurgitated from the small intestine into the stomach.

The next morning (Saturday) after having given the child two ounces of castor oil and continuing rectal irrigations there was a fairly copious evacuation of the same type of material she had vomited, showing that it was "going in both directions." In the meantime after the administration of chloroform, luminal and magnesium sulphate the convulsions became less marked, she did not have typical convulsions, but there was still some jerking of the arm and shoulder. Only the upper extremities were involved, there were no marked spasms of the lower extremities at any time.

The next day (Sunday) the child became quiet and after she had a free fecal evacuation we thought our troubles were over, but there was never any indication of returning consciousness. The pupils remained inactive and shortly afterward she had typical respiratory depression. She ceased breathing and became cyanotic. Under artificial respiration for fifteen minutes her breathing was restored.

The following morning (Monday) the child seemed considerably improved and we thought she would recover, although the least irritation would produce a paroxysm or spasm not strictly localized, first one hand and arm then the other, the right side of the face would twitch and the left eye showed greater deviation.

On Monday morning she again began having clonic convulsions and at the same time there was considerable cardiac depression. These symptoms became worse, but by the use of magnesium sulphate intravenously the signs of basal pressure seemed to be relieved, especially after free fecal evacuation had occurred. She still had some jerking of the muscles, but this was not marked.

About midnight the nurse who was watching the child called me and said the child's respiration was very "jerky" in type. By the time I reached the bed respiration had practically ceased and she died within three minutes.

This was the most peculiar case I have ever seen, and I am very grateful to Dr. Bruce for his attention and advice. The child was unconscious when I saw her 8:30 Friday evening and she remained unconscious until she died about 2:30 the following Tuesday morning. Early petechial hemorrhage in intestine and post-retinæ would suggest a similar condition in the brain, toxic in origin.

Samuel G. Dabney: I have been much interested in the case reported by Dr. Bruce. He did not tell us about the appearance of the retinal vessels; they must have been greatly engorged. It may be interesting to note, in this connection, that when we find arteriosclerosis of the retinal vessels, we know there is arteriosclerosis of the vessels of the brain. I mention this only to show the close relationship of the retinal and cerebral circulation,—not that such a condition is to be thought of here.

I am inclined to think in the case reported that the retinal hemorrhages were a part of extensive engorgement of the vessels elsewhere. I believe necropsy would have shown a similar condition in the brain.

J. Garland Sherrill: There are several features about the case reported that are difficult to understand. We know that encephalitis may be the cause of so-called irritative convulsions. It is also true that convulsions may be due to transmitted pressure. It seems to me that cerebral hemorrhage would account for the symptoms in this case, that is pressure from blood clot. In the beginning of the illness there must have been more or less toxemia if one may judge from the symptoms related. With minute hemorrhages into the fundus of the eye certainly suggests the possibility of hemorrhage into the brain itself. It seems doubtful whether there was in this case the type of vascular disease which occurs in older people as mentioned by Dr. Dabney. If there is extensive congestion of all the vessels of the brain, of course there may be a similar condition of the eye; but in the case reported the external deviation of one eye would suggest a central lesion.

John J. Moren: The case reported is very interesting to me. I have seen several patients with convulsions limited to one side of the body. Only recently there was a case resembling this to some extent at the children's hospital. The patient died and they succeeded in obtaining permission for a necropsy. The brain is to be examined later. Not long ago I had under observation a boy who had continuous convulsions limited to one side. After several weeks he recovered and is well today. Dr. W. Frank and Dr. Dabney know a man in Louisville who had many unilateral convulsions, the cause of which I do not know, but he is now well.

In the case reported by Dr. Bruce my interpretation would be that there were multiple lesions, one which gave rise to third nerve paralysis on the left side, and another giving rise to intermittent convulsions on the right side. There was some cortical disturbance, possibly hemorrhagic in type, belonging to the classification now described as hemorrhagic encephalitis. This might explain the hemorrhage in the retina as well as in the brain, also the stomach and intestinal tract. Several cases have been reported in which encephalitis was associated with gastro-intestinal hemorrhage. I recall one man in this city who was treated for typhoid fever over a long period; he had intestinal hemorrhage. Today he presents a typical picture of the Parkinsonian syndrome. He may have had typhoid fever, but in addition he certainly had encephalitis. I have seen several references in the literature of hemorrhages into the gastro-intestinal tract in cases of encephalitis. It would be interesting to know the pathology in the cases.

I recall a child seen at the city hospital several years ago who had continuous unilateral convulsions limited principally to the face and arm. That child died and an autopsy was performed by Dr. L. K. Baldauf. No microscopic tests were made, but macroscopically there was no evidence of hemorrhage in the brain. The diagnosis was left undetermined. The history of that child may be of interest. She fell from a baby buggy and struck her head against the sidewalk. A short time thereafter she began having convulsions limited to one side of the face and one eye.

Philip F. Barbour: The case reported is very interesting and certainly well presented by Dr. Bruce. It illustrates how desperately ill a chlid can become in a very short time. Most diseases in children are apt to be abrupt in their onset. The height of the fever would be suggestive of a disease of toxic origin. Encephalitis seldom develops de novo, so I am inclined to believe that the brain symptoms were the result of profound toxemia accompanied by severe, persistant and continuous convulsions. I do not see why it should not be perfectly possible for convulsions lasting for hours and days to produce small hemorrhages into the cortex of the brain and into the eye. I have seen them produce gastro-intestinal hemorrhages.

It is difficult of course in this case to exclude encephalitis. This disease has such a variety of symptoms that it is impossible to say positively this child did not have encephalitis, but the high temperature from the beginning of the illness in a child perfectly well beforehand makes me believe it was the result of toxemia rather than encephalitis. The absence of any disease beforehand is against encephalitis.

I saw in the Journal of the American Medical Association a week or two ago, the report of a number of cases of encephalitis with seven or eight autopsies on children dying from encephalitis as a sequel of measles. Dr. Bruce some time ago reported a case of encephalitis as a complication of chickenpox. In the case reported the child had no prodromal disease, and in the absence of any history showing that the child had been previously ill, I am inclined to attribute the prolonged convulsions to some other lesion.

The fact that the intestinal tract was loaded with foul toxic material which was difficult to remove rather points to this as the focus from which the toxemia was coming.

James W. Bruce (in closing): I thank the gentlemen for their generous discussion. The question whether the convulsions in the case reported were caused by hemorrhage or by an inflammatory process was one that puzzled us considerably, but we finally came to the belief that they were due to an inflammatory lesion since injury caused by hemorrhage would be more likely to produce paralysis rather than convulsions. That point was emphasized by Dr. Glen Spurling who was called in consultation. He believed that pressure due to hemorrhage would cause paralysis, whereas an inflammatory lesion would be more apt to produce convulsions. It seems to me the response to glucose would be against hemorrhage. The child seemed to get such great relief from the glucose that we thought the respiratory paralysis was due to edema, because we know that hypertonic glucose relieves edema, and in this case seemed to relieve pressure on the vagus and respiratory centers. I do not see how it could have had the same effect in the case of hemorrhage.

It was a very puzzling case. I never saw one like it before, and wish we could have had an autopsy, but the family would not consent.

Treatment of Celiac (Herter's) Infantilism with Fruit and Vegetable Diet.—Fanconi treats Herter's infantilism (chronic digestive disturbances in the period succeeding infancy) with a diet of fruit and vegetables to combat acidosis. Later he adds meat, especially calf's liver; this addition to the diet promotes gain in weight. In this extremely chronic disease the disturbance in metabolism (demineralization, intermediary acidosis) is of more importance than the intestinal dsturbance. His experience with this treatment has been encouraging. Scurvy has ceased to appear as a complication. Another complication, which he formerly called scorbutoid but now prefers to call hypothrombinemia, has, on the other hand, increased. It is manifested clinically as hemorrhages in the skin and soft parts (some reaching the extent of purpura fulminans) and profuse hematuria. The gums are not affected. Rumpel-Leede's phenomenon does not appear. Coagulation of the blood is markedly retarded.

TREATMENT OF ADVANCED HEART FAILURE.*

By O. N. Bryan, M. D., Associate Professor of Medicine, Vanderbilt School of Medicine, Nashville, Tenn.

Any rational treatment of cardiac insufficiency or heart failure must be based on the correct diagnosis and must be directed toward the symptoms, the organic lesion, the disturbance of function and the morbid cause. Symptomatic treatment in heart-failure cases will be directed toward such symptoms as arrhythmia, cough, dyspnoea, oedema, fainting, tachycardia, hemoptysis, hypertension, insomnia, hypotension and bradycardia. The case may be one of cardiac insufficiency, cardio-renal insufficiency, or cardio-pulmonary insufficiency. The factor which ordinarily dominates the treatment is the morbid cause. The chief causes are (1) The acute infections, such as rheumatism or acute rheumatic fever, typhoid fever, pneumonia and the various pyogenic infections, and the chronic infections, as syphilis. (2) The metabolic or nutritional diseases; gout, and obesity. (3) The intoxications; as lead, tobacco, alcohol, etc. (4) The disturbances of the nervous system and ductless glands; as toxic goitre, and (5) Heredity, as in congenital syphilis.

Martinet says between the minimal work entailed by absolute rest and the maximal work entailed by the utmost exertion, of which the body is capable, there is a varying margin of cardiac reserve power which allows it to adapt itself, without failure, to any exertion which it is called upon to make within these limits. If the upper limit is exceeded, however, and the reserve power of the heart is used up, proper balance can no longer exist, the heart is no longer equal to its task, and the condition known as cardiac insufficiency is produced.

There is no necessary relationship between the extent of the lesion and the disturbance of the function. A diseased heart may be perfectly compensated and have much reserve power; and on the other hand a heart without lesions, but weak, may have a very limited amount of reserve force.

One of the most important phases of treatment of cardiac failure is a discussion of prevention of heart failure. The effectiveness of preventive measure will depend on the promptness and thoroughness with which they are instituted. Eggleston says "prophylaxis is designated to control conditions liable to cause further damage to the diseased heart; protect the heart against overtaxation; and increase the cardiac efficiency." Careful search and eradication for foci of infection must be instituted. Overindulgence in stimulants, coffee, tea, alcohol, and tobacco must be stopped or at least must be taken very sparingly. The diseased heart has a smaller reserve power and therefore will tolerate less than the normal heart. In a diseased heart we should adopt measures to prevent overstrain. Physical and mental exertion, worry, anxiety, anger, and haste as well as dietetic indiscretions, overindulgence in food and the lack of sleep and rest are all potent factors in overtaxing a diseased heart. Surgical operations should be avoided as much as possible; however, if necessary, then let them be preceded by a period of rest and digitalization. Ether is said to be the most desirable anaesthetic in such cases. Pregnancy should be discouraged in such cases; however, if it takes place, then we must watch them carefully during the pregnancy and not allow labor to be too prolonged. Cardiac efficiency may be increased by careful attention to the mode of living of these patients, their diet, exercise in a graduated manner. One should allow any form of exercise, training or sport which the subject is able to go through without experiencing any discomfort, as prolonged tachycardia, palpitations and marked dyspnoea. The object of treatment is to restore the exhausted muscle and place the patient in such a position that he can lead a life useful and free of discomfort.

The diet in the advanced heart failure case must be regulated as to quantity, quality and the amount of fluid and salt. The diet will depend much on the extent of the trouble. If only moderate congestive symptoms and signs are present then a more liberal diet may be had than if we are dealing with marked congestive symptoms and signs which will call for Karrell diet. It will suit most cases to have small amounts at each feeding and be fed four or five times per day. Large meals at bedtime are contraindicated. Attention must be given to the daily evacuation of the bowels to prevent constipation and straining. Alcohol must be forbidden and tobacco must be either forbidden or very much limited, but it is said abstinence is easier than temperance. Strong coffee and tea should not be taken. The obese patient must be on a restricted diet, that he may lose weight, while on the other hand the asthenic type of individual must have a more liberal diet. The amount of fluids must be restricted according to the case, and in the markedly oedematous case resort to the Karrell diet. Where possible a careful measurement of the intake and output of fluids must be made. In many cases of heart failure with oedema a reduction of the amount of fluid taken will give you a diuresis, diminution of the oedema and loss of weight.

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*Read before the Third District Medical Society

The amount of fluids allowed cases of heart faiure will to a degree be determined by the amount of oedema present. When there is slight oedema then allow up to one and one half quarts per day, but if the oedema is marked the amount must be limited to about one quart per day. The dry treatment is not suitable to every case, but every case of cardiac insufficiency should have restriction of the fluid intake. The effect of digitalis is more pronounced if combined with the dry treatment. These diets should always have the sodium chloride restricted to the minimum. The Karrell diet is a most excellent plan of treatment and as originally carried out by Karrell was: 800 cc. skimmed milk during the twenty-four hours (200 cc. at 8, 12, 4 and 8). It is a dry treatment and the patient must be told this means no other food or fluids. The thirst may be quenched to a certain degree by allowing the patient to take crushed ice occasionally. Eight hundred cc. of skimmed milk represent 350 calories and contains about 1.3 gms. of sodium chloride. This treatment is modified in many ways. The plan I follow is to carry out the plan with 800 to 1000 cc. of milk per day for five to seven days, and on the seventh day allow two pieces of dry toast with the milk in twenty-four hours; on the eighth day allow the bread and add one soft egg to it; on the ninth day add two more pieces of bread with one egg and the milk; on the tenth day allow the milk, bread and add one more egg; on the eleventh day add a cereal to the above, and after this, add chopped meat. After this they must keep the diet dry and must take water sparingly and avoid sodium chloride as much as possible. If you will keep accurate records of the intake and output in these cases it will be surprising the amount of diuresis or output which usually begins about the third day after this treatment is begun.

Budingen strongly emphasizes the value of intravenous use of glucose in heart failure. He injects 200 to 300 cc. of a 12 to 20 per cent solution of glucose and six to ten such injections are given with an interval of a week between the injections.

Absolute rest, in bed or on the couch or on an arm chair, is by far the most important single factor in treating heart failure. We are all acquainted with the excellent results obtained by rest in the bed in the cases of beginning heart failure. It is imperative in the advanced cases to keep the patient in the bed. The bed must be made as comfortable as possible with the head of the patient elevated in whatever manner possible. Most as important as physical rest is mental rest. The patient must be kept as free as possible from tiresome visitors and business worries. After compensation is established the patient should be instructed how to cautiously begin to sit up and be instructed in graduated exercises. Much will depend on the occupation of the individual as to how soon he will be able to undertake work. The best results are obtained in patients accustomed to a sedentary life without sufficient physical exertion and with a more or less marked tendency to obesity, obstipation and abdominal congestion. The psychic treatment is a big factor in managing cases of heart failure and must be given due consideration from every angle. Venesection is of benefit in certain of these cases but unfortunately is only temporary. It should be used in cases with distress of breathing and great distension of the right side of the heart. MacKenzie in speaking of Spa treatments and Nauheim baths says, "The vast majority of patients go there as much for a holiday as for treatment, and when the patient is sent there, it is often because the individual, in addition to his complaint, has been busy with his affairs and his heart complaint has thereby been aggravated; or a patient is convalescent, and a change of air, scene and mode of life is often found beneficial. When the cases that are cured and the cause of their cure are strictly analyzed, it will be found that at Nauheim, what I call the essentials of treatment are carried out in an excellent manner. It is a pleasant place, sunny and well shaded with beautiful gardens and an excellent band." The assembling, in crowds, of neurotic people is a bad feature. They are so fond of detailing their symptoms to one another that they cultivate the habit of self-analysis.

Drugs.

We must remember that the object in treating heart failure is to treat the failure and not the cause. The aim of all treatment is to restore and maintain the functional efficiency of the heart, and prevent recurrences as long as possible. We should not rely on medicine alone to accomplish this purpose but use all available means. Digitalis has been extensively used since the classical report by Withering in 1785 and is today the most valuable drug we have in treating heart failure.

Eggleston says the therapeutic effects of digitalis are attributable to its capacity to slow the heart rate; to reduce the rate of irregular ventricles in auricular fibrillation; and probably to increase the force and magnitude of ventricular systole. The slowing of the rate in febrile and extremely toxic cases is more uncertain. The most dramatic effects of digitalis will be seen in cases of auricular fibrillation. Digitalis by prolonging diastole wll permit an increased volume of blood to enter the ventricles, improve the coronary circulation and thereby the nutrition of the heart, and allows more complete recovery of the contractile power. The diuresis from the administration of digitalis is thought to be a secondary result from the improvement in the circulation rather than any direct effect on the kidneys. Digitalis will often make hypotension and hypertension cases become nearer normal in case of heart failure as compensation takes place in the heart. Digitalis should be given in cases of heart failure with hypertension just the same as if no hypertension was present. Digitalis has different actions on different individuals. In some there is quickly developed an intolerance to the drug, while in others it is slower of action. This intolerance is manifested by nausea, vomiting, diarrhoea and headache with a slow pulse. No doubt digitalis is prescribed in many cases, such as weak heart, palpitations, extrasystoles, etc., and expected to give results when it is not really indicated. But when there are undoubted signs of heart failure such as breathlessness on slight exertion, dropsy and a rapid action of the heart, then digitalis should be given in sufficient doses and pushed to the physiological effect as manifested most commonly by nausea and vomiting. What preparation of digitalis should we give? Some men prefer one preparation and others another, but it makes no particiular difference so long as a standard preparation is used and is pushed to the physiological effect. If it is pushed to the physiological effect then equally as good results will be had from the tincture, powdered leaves, infusion or tablets. The dosage of digitalis: We cannot at anytime be sure we have given sufficient digitalis until we have pushed it to the point of getting some of the toxic symptoms. We can be fairly certain that we have reached digitalization by closely observing the condition of the patient and not have to push the drug to the annoying toxic symptoms. The rapidity of digitalization will depend on the condition of the patient. One in extreme discomfort should be pushed faster than one with a milder form of decompensation.

There are three methods of giving digitalis: (1) the small dose method; (2) the large dose method, and (3) body weight method. In the small dose method, from four to six days are required for digitalization. One-eighth to one-fourth gram (gr. two to four) of the powdered leaf or 1.25 to 2.5 cc. (minims twenty to forty) of the tincture should be given every four hours and continued until digitalization is accomplished. Let me call your attention to the fact that it takes three or four drops of the tincture of digitalis to make a minim; this I believe to be the cause of so many failures in digitalis administration. With the large dose method from one to two days are required for digitalization. During the first twenty-four hours a dose of .4 gm. (gr. four to gr. seven) of the powdered leaf, or 4.0 cc. (dram one) of the tincture is to be given every six hours. On the second day the dose is to be reduced to about 0.2 gm. of the leaf or 2.0 cc. (minims thirty) of the tincture and the interval to four hours, four doses throughout the day and none at night. By the body weight method full digitalization may be accomplished in twelve to twenty-four hours. The activity of the drug is determined by the cat method of Hatcher, the unit being the weight of the dry drug, in milligrams which is required to kill one kilogram of cat when injected slowly and continuously intravenously. This amount of the drug is termed the cat unit. The average total amount of digitalis required for oral administration to man is 0.15 of one cat unit per pound of body weight.

1. $\frac{\text{C.U.-x- }0.15\text{-x W}}{1000}$ equals grams of powdered leaf in total amount.

2. $\frac{\text{C.U.-x }0.15\text{-x W}}{100}$ equals cubic centimeters of tincture in total.

3. $\frac{\text{C.U. }\frac{3}{4}\text{ W}}{100}$ equals cubic centimeters of infusion in total.

C.U. is the number of milligrams in one cat unit and W is the patient's body eight. Take for example a patient that weighs 150 pounds and the available digitalis has an activity of 100 milligrams to the cat unit. Formula one is 100-x-0.15-x 150 equals 2250 divided by 1000 equals 2.25 grams of the powdered leaf in total amount.

Another way of figuring the average total dose of tincture of digitalis is: allow 1.5 cc. for each ten pounds of weight or two minims per pound. The dosage of the powdered leaf should be one-tenth of this amount.

If the oedema does not disappear and diuresis is not marked under the digitalis therapy, then we should give Novasurol in one-half to one cc. doses every three or four days, intravenously or intramuscularly. In my hands it has worked as well without ammonium chloride as it has with it. The Fothergill or Guy's Hospital pill given one three times daily works well in some cases; these pills contain one grain each of powdered digitalis, calomel and squills. Diuretin or theobromine sodium salicylate is effective in some such cases.

Quinidine: Eggleston says the restoration of normal rhythm by quinidine is sometimes followed by complete recovery of cardiac efficiency in the early cases with auricular fibrillation. Quinidine is best administered orally in capsules. A dose of six grains should be given four times during the day and once at night.

There are many other factors that should be considered in the treatment of advanced heart failure but I have tried to cover the essentials.

In closing I would ask that you remember the three big factors in treating heart failure: (1) absolute rest, (2) diet, and (3) complete digitalization.

THE HEALTH OFFICER, MEDICAL PROFESSION AND THE LAITY.*

By W. S. Leathers, M. D., Professor of Preventive Medicine and Public Health, Vanderbilt Medical School, Nashville, Tenn.

It is with some misgiving that I have chosen this subject for discussion because I am conscious that much consideration has been given to it during recent years. However, I thought it would be of interest and of constructive value to emphasize the importance of securing and maintaining a closer interrelation between the health officer, organized medical profession and the laity for mutual benefit.

The medical profession has consistently manifested an altruistic spirit concernng the public. With the remarkable advancements in medical science, the opportunities of the profession in the prevention and treatment of disease have been proportionately increased. In turn, the public is becoming more enlightened with reference to the possibilities of preventive and curative medicine, and as a consequence is exacting of the physician a larger and more efficient service. Organized medicine has always occupied a position of leadership not only in the advancement of medical science, but also in the prevention of disease and promotion of the public health. The public, is therefore, expecting of the profession continued interest and constructive leadership in the solution of problems that confront us in the control of disease, the alleviation and relief of human suffering and in the social betterment of community life.

In order to have a clearer perspective and broader vision, it may be well to recount briefly some of the outstanding needs of the public based on careful practical studies during recent years. Let us begin with maternal and infant hygiene. It is found that on an average about thirty per cent of the births of this country are unattended by physicians. This means that a total of approximately one-half million births in the United States are improperly cared for or are attended by poorly informed and in the main ignorant midwives. One of the most serious public health questions with which we are confronted is the inadequate medical and nursing supervision afforded to mothers and infants during a period when such aid would be invaluable. Kentucky has a somewhat better condition in this respect than a number of states but your State Health Officer, Doctor McCormack, informs me that 21 per cent of the confinements in your state are attended by midwives. In another state with which I happen to be familiar, statistics show that out of 45,050 total births during 1922 there were 22,741 who were attended by physicians; and there were 21,705 who were attended by midwives. Ninety-eight per cent of these midwives could neither read nor write. This means that approximately fifty per cent of the births of that state were not attended by physicians, but on the contrary the mother was administered to during the most trying ordeal of her life by the flickering light of ignorance and superstition.

It seems clear that there is no problem today which merits the consideration of the medical profession more than giving adequate protection to the health of mothers and infants and the reduction of infant mortality. When it is realized that the number of deaths of women from all puerperal causes in the registration area of the United States during 1925 was 15,315, and that approximately 161,961 die annually before reaching the age of one year, the problem of maternal and infant hygiene becomes one of the first magnitude. Moreover, the records of the Bureau of Census shows that 108,478 infants or about sixty-seven per cent die prior to three months of age. It is also significant that there has been no material reduction in the maternal death rate in the registration area during the last two decades. It is probable that not less than seventy-five per cent of this mortality is preventable. These conditions are a reflection not only upon the laity but a challenge to the organized profession for intelligent and constructive service to motherhood.

During recent years, nation-wide interest has been stimulated in child health and as a result surveys have been made which revealed that there is an appalling need for improvment in the health of children of the preschool and school ages. There are approximately five million children in the United States under two years of age and of this number a conservative estimate indicates that 1,500,000 suffered from diarrhea and enteritis during 1925. Added to this, there were 36,300 deaths reported as attributable to these infections. There are also approximately 30,000.000 children in the United States of school age and of this number careful estimates show that more than 1,000,000 suffer annually from four of the so-called children's diseases, namely, measles, whooping cough, scarlet fever and diphtheria with the attendant sequelæ. Moreover, many of these cases receive no medical attention or the medical service is delayed or inadequate. The gravity of this situation becomes more serious when it is known that much misinformation is conveyed to parents concerning the danger of these diseases even by members of our own profession. It is, therefore, not unnatural for carelessness to prevail among the laity concerning the so-called diseases of childhood. Then, too, there are at least fifteen per cent of school children who suffer from eye defects which means a total of about 4,500,000 with defective vision. Because inadequate medical service has been provided for thousands upon thousands of these children, scores are not only injured permanently in health, but become "repeaters" in school and cause an unnecessary economic waste to the nation. There are also more than 3,000,000 children of school age being retarded in growth and development, and who are also handicapped in school because of diseased tonsils and adenoids. In turn, there are at least 15,000,000 children who show defects in mouth hygiene and thousands are suffering from physical inefficiency, and as a consequence, they are being retarded in school, resulting in a large financial loss in the use of funds for public education. Then, there should be mentioned the large army of undernourished and underweight children which varies from twenty to thirty per cent. This means not less than 6,000,000 children are undernourished and who may be classed, potentially, as cases of tuberculosis. Much of the malnutrition among children is due indirectly to physical defects, infections, parasitic infestations and bad environment. These facts show that there is a great physical drain upon the vitality of the child life of the nation for which improper provision has been made in medical supervision and which offers an opportunity for increased medical service.

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*Read before the Third District Medical Society

Then comes the period of adolescence, the age of sex impulse,—the age during which occurs the largest percentage of venereal infections. Careful estimates indicate that about one-tenth of all deaths are caused by leutic infections and at least twenty per cent of the inmates of our institutions for the insane are there because of the ravages of syphilis. This, therefore, presents a problem of grave import not only from the viewpoint of conserving public health, broadly speaking, but also from a purely economic standpoint. When it is further realized that these diseases are the principal causes of sterility and serve as the chief source of supply of patients in gynecological wards of our hospitals, this offers a serious problem in the perpetuation of a vigorous civilization.

Statistics show that the venereal diseases took more men out of the line of battle during the recent war than shot, shell and gas. This shows in an unmistakable way the inroads that are made by these infections which are broadcast among the civil population. They not only produce sterility but physical inefficiency and enormous waste in productive capacity. Our experience and observation in practical public health point to the fact that probably twenty per cent of all cases of venereal disease are receiving no medical attention. Moreover, a considerable percentage of such cases become indifferent to scientific treatment and follow the advice of friends or come under the influence of quacks or are allured by patent medicine advertisements into taking proprietary remedies. Obviously, the incidence of venereal disease presents a medical and public health problem of tremendous importance and scope, and one which will require the most constructive, educative and scientific leadership in its solution.

The enumeration of these outstanding problems not only serve to emphasize and convince us concerning some of the needs for an increased medical service; but I think an analysis of this data also leads one to conclude that the greatest medical need of the laity at the present time is a better appreciation of the possibilities and benefits to be derived from scientific medicine. It is probable that not more than sixty per cent of the people have proper appreciation of the value of medical science. Because of the ignorance of the public and, as a logical sequence, the indifferent attitude of the laity, is there any wonder that cults, pathies, isms, and charlatans of every kind gain headway in offering their wares to the people? This condition of society can be changed only by a persistent, systematic, and intelligent attitude on the part of the organized profession in the education of the people relative to personal and community hygiene, the principles involved in the treatment of disease, the benefits derived from medical discovery and the intrinsic value of scientific medicine. It is, therefore, evident that the profession and the public have a large mutual interest which unites them in a common task, namely, to supply the increased demand for a larger medical service, and also one that affords a closer correlation between medical practice and community public health activities.

Having presented the above facts, the question may be asked, Can a more definite contribution be made by the organized medical profession of a state not only in the enlightenment of the public but also in the supply of the larger medical service needed and required to adequately conserve the public health? In directing an answer to this question, it may be well to recall that there are at present 118 component county medical societies and 11 district medical societies in Kentucky. Many of these societies have regular meetings for maintaining high scientific standards in the practice of medicine and some of them doubtless make generous contributions for the improvement of the public health. During recent years, many of the county societies have very properly merged into district organizations and there is perhaps a tendency on the part of the physicians in each county to lose their individuality as a group with reference to the problems of the county in which they practice. The greatest strength of the medical profession does not consist in the individual but in the organized effort of its membership. It is, therefore, extremely important that the county and district medical societies of a state determine ways and means that will enable the physicians of the constituent counties to advocate and carry out a more definite policy relative to (1) the education of the people in preventive medicine, (2) periodic medical examination for those who are apparently healthy, and (3) formulating a plan which will enable the physicians of a county to assume definite responsibility for any corrective work that may be necessary among children, and which may be done in accord with the ethics of the medical profession. This need will be supplied.

1. Education of the people. The question may be asked, Is it possible for the physicians to formulate a plan in the respective counties in the state that may be used in a systematic way in the enlightenment of the public concerning the prevention of disease and the benefits derived from scientific medicine? It would seem to me that there should be arranged by the physicians of the county at least two or more public health meetings, in different parts of the county during consecutive years, for the purpose of discussing local health problems. This would afford opportunity for assuming a more definite attitude to the laity in the solution of health problems and the enlightenment of the people on recent advancements in medical science. Such a plan should only be carried out in cooperation with the state and local health authorities. This would serve to establish between the profession and the collective minds of the public a more sympathetic relation. It would also be a means of causing the medical profession to assume its rightful place in directing public opinion not only in the physical salvation of the people, but also in increasing and maintaining that influence and prestige which is fundamental in the accomplishment of any great service.

On March 24, 1927, a conference on public health was called by the Secretary of the American Medical Association with the approval of the Board of Trustees for the purpose of discussing subjects pertaining to the relation of the physician to public health. I am of the opinion that this meeting marked the beginning of a new era in the mobilization of practitioners of medicine for a larger professional and public health service. A number of excellent papers were presented with a view of determining more clearly the present status of medical practice relative to activities of official and non-official health agencies; and the part which the organized profession should play in the modern scheme of public health.

I think it is generally agreed among health officers that it is desirable for the medical profession to participate more actively in this undertaking and manifest at all times intelligent leadership in public health movements. In an interesting and constructive paper by Doctor Arthur Holbrook of Milwaukee before the conference above referred to, the same viewpoint is stressed in the following statement: "In my opinion the medical profession leaves the work of the allied organizations too much in the hands of the laity." Some one has said that "medicine has a poor vision when it comes to seeing socially," and the indictment is more or less true. There would be far less criticism to offer these organizations if physicians were a bit more far-seeing, if they sought membership and activity in these agencies, gave freely of expert medical advice, interpreted and explained technical aspects to lay members, gave talks before clubs and other groups to help educate the public in the objects and activities of antituberculosis, Red Cross, family and infant welfare and like activities. On their side these organizations should realize that their greatest usefulness is attained when they supplement the work of the public health authorities and work in close cooperation with them. Kipling's oft-quoted lines might well be made familiar to their membership: "It ain't the individual nor the army as a whole, but the everlasting teamwork of every bloomin' soul."

2. Making of periodic medical examinations of apparently healthy people.—It may be well to introduce one or two witnesses in order to emphasize the need for the consideration of this question. In 1925 and 1926, the Life Extension Institute of New York examined 169,236 people, males and females, including all races representing various industries and living in different parts of the country. It was found that eighty-five per cent of them were in need of medical attention. This includes those needing corrections of visual defects and possible surgical attention as well as medical supervision and treatment. Only twelve per cent were under the doctor's care at the time of the examination but probably not all of the defects found by the medical examiner of the Life Extension Institute were under treatment. This Institute has examined to date more than 500,000 people, showing that at least 60% of those examined were in need of medical treatment and only about twenty per cent of those needing treatment were receiving it. Again during the period of recruiting soldiers for the World War, examiners frequently found that young men apparently in the very vigor of manhood showed physical defects which were making inroads on their health and of which they were wholly unconscious. Moreover, a large percentage of them would have developed chronic conditions had not advice been given and opportunity offered for medical attention. Then, there is the difficult problem of reducing the incidence of the so-called degenerative diseases, which are showing a marked increase in death rate in this and other countries. In Kentucky, the death rate from cancer is 60, heart disease 68, and nephritis 24 per 100,000 people. There has been an increase from cancer during the past decade of 15 per cent and heart disease 12 per cent in your state. The early recognition of these maladies is the only means in the light of present knowledge for preventing and retarding their progress. No measurable results are being secured in dealing with these diseases of advancing age.

These conditions show the fundamental need of periodic physical examinations, especially, after passing the age of forty. This should be done not only by physicians in their practice but also through effective organization of the medical profession. Would it not be possible for the county and district medical society to formulate a plan for making periodic health examinations as an educative demonstration so as to impress the public with the necessity and value of life extension work? Of course, these examinations are designed to detect early evidence of functional disturbance before there is discomfort, inconvenience, interference with work, or anxiety has led the person to seek medical advice for the treatment of an established disease. The methods employed should be those used in the diagnosis of disease. However, such an examination should be made with discriminating care and accuracy if the public is to be impressed and the desired results obtained. Frequently hygienic measures must be advised rather than curative agents. Moreover, the attainment of results will largely depend on a "follow-up" procedure by the physician. This is indispensable.

We realize that when a person comes to a physician it is usually because the individual feels the need of medical attention or he is of the opinion that disease has developed, although he may not be suffering materially from any particular disability. It is, however, gratifying that in recent years there has been an increased interest on the part of the thoughtful laity in having physical examinations made in order to obtain a correct estimate of the physical condition,—a health audit,—to determine the state of health and t oseek advice and guidance in improving the physical standard, and also to obtain suggestions for avoiding the disabilities of advancing years.

To facilitate this movement, it would seem possible for the physicians in a county to organize in cooperation with the state and local health agencies so that opportunity may be afforded for the examination of apparently healthy people as a demonstration clinic, educative in purpose, charging a nominal fee for making the examination. I do not believe that very successful results will be obtained in the promotion of this movement without a more definite cooperation between the health official and the practitioner of medicine. The two should be mutually interested in developing a plan which will serve to impress upon the laity the worthwhileness of a periodic examination. Doubtless the usual educational methods will cause the more intelligent people to seek such advice, but the great mass of citizens, who are most in need, will be slow in responding except through demonstration methods. This group of citizens has certainly not yet been reached.

3. Formulating a plan by the physicians in a county for corrective work among children.—We know what a large percentage of children are in need of medical attention and, what is even worse, their parents are in many

instances uninformed and indifferent concerning their physical welfare. Would it not be practicable for the county or district medical society to develop a plan of work in cooperation with the state and local health departments which would enable it to function not only for the purpose of enlightening the people relative to the possibilities of scientific medicine, but also to demonstrate in a practical way the advantages accruing from the correction of physical defects which are a menace to child health and cause inefficiency among scores of children? As a profession, we have advocated for many years the importance of the examination of school children. We have stood in season and out of season for this phase of public health work, realizing that the child is the most potential unit of society. It is, however, the concensus of opinion that when such examinations are made and the parent merely notified of the defect, without providing ways and means for corrective work, that not more than ten per cent, and usually a smaller percentage of children, have the defects corrected. When a considerable expenditure is incurred in order to make an examination of the children of a county or district, such a result could not be regarded as an economic procedure in public health practice.

It is, therefore, imperative that some plan be agreed upon by the profession which will cause a larger percentage of children who show defects to have them corrected. The great need in this practically unsupplied field of medicine should certainly enlist the interest and cooperation of the medical profession in rendering a larger service for the conservation of child health, and which will also serve as no other phase of public health to blend the interests of the public and the profession for mutual benefit. The profession will experience increased opportunity for service and financial gain,—the medical attention given will result in the development of a more vigorous citizenship which is so essential for the solution of the economic problems in the commercial progress of the state and nation.

In reviewing the literature and records of your State Health Department, I have been much impressed with the constructive program and results obtained under the efficient direction of your State Health Officer. I find that in Kentucky the death rate from typhoid fever for 1923 was 19.6 which is much higher than the majority of states, and the rate of Tennessee is 20.9. Of course, this rate is definitely increased due to the incidence of this disease among negroes in these states. The death rate from this disease in Massachusetts and Minnesota respectfully is about 2 per 100,000. However, the mortality rate from tuberculosis in Kentucky has been reduced during the past twenty-five years approximately 50 per cent. There has also been a decrease in the infant mortality rate. Doctor McCormack tells me that the reduction in the total death rate is occurring in the early age groups, while there is an increase in the death rate above the age of forty.

The future of the health work in the respective states will depend largely upon efficient local health organization. It is encouraging to note that Kentucky has at present 36 counties provided with an all-time health service out of a total of 120. A large measure of the success attained in securing these gratifying results should be attributed to the efficiency of your state health organization.

There will be no difficulty ahead in establishing the proper reciprocal relation between health departments and the medical profession in upbuilding the health of the citizens in a community or state provided we have at the head of such a service a trained man, and one who is imbued with the ideals and purposes of the profession. We need men in these positions who are not influenced by partisan politics, but who endeavor to consider each problem from a scientific viewpoint.

The health officer should be in sympathy with medical practice and acquainted with the problems and difficulties with which the practitioner is confronted. He should insist on the rights of physicians in the dispensaries and clinic, and secure the cooperation of the public by referring cases for treatment to the family physician. Personally, I have never been associated professionally with a health officer who has not honestly endeavored to carry out this objective. The other kind doubtless is found. However, any health officer or health department that advocates a policy which is disregardful of the rights of the practicing physician is doomed to failure regardless of the degree of efficiency attained and the worthiness of the cause presented.

Unfortunately, there are members of our profession who are not informed relative to the development of the modern health program and who assume a critical attitude to health activities that are perfectly legitimate and based upon sound scientific and educational procedure. These, however, are in a minority. The large majority of physicians of this country are cordial toward and are heartily in favor of public health activities. I understand that in your own state there has been a wholesome cooperation in the main between the profession and the state and local health authorities. This should be so when it is the policy of your State Health Department to consider with equity the welfare of the medical profession and the laity, and with due regard for the traditions and ethical principles underlying the practice of medicine. This should be done by every official and voluntary health agency. If we can utilize the 90,000 members of the American Medical Association in the practice of preventive as well as curative medicine, a great forward step will be taken in the physical betterment of mankind.

However, in our effort to establish a more wholesome relation between the health officer, the medical profession and laity for mutual benefit, much confusion has developed during recent years because of a misconception pertaining to so-called "state medicine"—the modern bugaboo of the profession. We seem at times to have organized our fears into an illusion and are erecting a specter. In reality, there is no accepted definition of "state medicine." It may mean anything that the commonwealth desires to do for the physical welfare of its citizenship and from this point of view, the insane hospitals, deaf and dumb institutions, charity hospitals and so forth could be so regarded. But of late, there has been a tendency to refer to the State Department of Health by many well-meaning physicians as developing a program which may lead to the adoption of such a scheme as a part of our body politic. This position cannot be sustained. In reality, state medicine is subsidizing the medical profession on the basis of a panel system such as the health insurance act created in Germany by Bismarck in 1883 and later adopted in modified form in England. "State medicine," therefore, is subsidizing the medical profession by the government primarily for treatment and cure, and has a different objective from that of the prevention of disease through public health agencies.

While there may be activities of the state health organization which are looked upon as somewhat undesirable by members of the profession and that may require adjustment, it does not seem to me wise to consider these activities as in any sense state medicine, or as having any tendency toward its development. On the contrary, in my judgment, if the time should ever come when it would be necessary for the medical profession to stand as a unit for justice and witness strongly for the truth, the best argument which can be presented to defeat "state medicine" will be the fact that our profession has liberally and consistently stood for and promoted public health activities in the prevention and control of disease, and only on this ground can such legislation be defeated.

We are facing a day of specialists, group medicine, preventive medicine, institutional service, conservation of child health, the control of infectious disease through governmental agencies; and whether we want to or not, as a profession we must look the fact squarely in the face and realize that with the dawn of a new era in the physical reconstruction of civiliation, there will be new adjustments between the established health agencies, the medical profession and society. This is inevitable. It is already upon us. The wise physician will face the fact without fear and with altruism, realizing that the medical profession has won a permanent place in society based upon service and that it is only by keeping the true ideal of service that this position can be maintained. As Doctor Haven Emerson has so well stated in a recent address, "Let us share the courage of the poet and welcome changes based on truth."

"New times demand new measures and new men;
The world advances and in time outgrows
The laws that in our fathers' day were best:
And, doubtless, after us some purer scheme
Will be shaped out by wiser men than we—
Made wiser by the steady growth of truth.
The time is ripe, and rotten ripe, for change;
Then let it come; I have no dread of what
Is called for by the instinct of mankind.
Nor think I that God's world would fall apart
Because we tear a parchment more or less.
Truth is eternal, but her effluence,
With endless change, is fitted to the hour;
Her mirror is turned forward, to reflect
The promise of the future, not the past."

Air Embolism in Artificial Pneumothorax.—Brock and Widre had twelve cases of embolism in 890 cases of pneumothorax with 13,935 refillings. In two of the cases the symptoms were severe; in the remainder, mild. There were no deaths. The point of the needle was in the gas sac in all. Adhesions and bands were numerous in every case, in spite of the fact that the gas sac was of good size. In no case with free pleurae and negative terminal pressure was embolism experienced. Embolism from entrance of the point of the needle into a pulmonary vessel occurs chiefly in primary pneumothorax and is always fatal. With proper technic, under continual manometer control, it should not occur. In particular, manipulations, such as suction with the syringe or introduction of physiologic solution, must be avoided in the absence of variations in the manometer readings.

REPORT OF CASE OF CEPHALIC TETANUS.*

By G. B. Carr, Sturgis.

This case is reported because it seems to be rather unusual in that no spinal symptoms were manifest. Osler[1] mentions "Cephalic Tetanus of Rose."

Case: Mrs. G. G., aged 80, stumped her toe and fell in back yard, May 28, 1928, striking forehead against brick wall and cuting gash one inch long at base of nose slightly to right of median line. No physician was called, she washed the wound out herself and tied cloth around head. Wound seemed to be healing alright, but sent for me on June 2nd (the fifth day) because of pain in her jaw. On examination, patient was sitting in chair with chin in palm of hand, she was trying to hold chin still, she was having spasmodic contractions of jaw muscles pulling chin to right. The right masseter muscle was hard and contracted on palpation, the left one only slightly. She could open her mouth some, but not fully. She could swallow without any disturbance. Temperature 99, pulse 90. I gave her 20,000 units tetanus antitoxin, intravenously. I could not attempt to sterilize wound because it was practically healed together.

Next day, June 3rd, her jaw was set tighter, could only open it by pulling down chin, which she did to talk or drink. Also on swallowing she would develop a spasmodic contraction of muscles of pharynx and have a choking sensation lasting 2 1-2 to 3 minutes, these latter getting worse later in evening and came on without provocation every four or five minutes. She was unable to sleep for them. She also showed some drooping of right upper eyelid. Temperature 99 3-5°F., pulse 96. I gave her another 20,000 units anti-tetanic serum also one-fourth grain morphine sulph. hypo. and 1 1-2 grain luminal every six hours.

These spasmodic contractions of pharynx and smothering sensations continued throughout that night and next day, June 4th. We continued the luminal and at noon (June 4th) gave her another 20,000 units anti-tetanic serum and 1-4. gr. morphine sulphate.

In the night of June 4th, the spasmodic breathing attacks seemed to be not so long or frequent, and still slightly improved the next day on June 5th, but were still provoked when she tried to swallow. Temperature 99 3-5, pulse 96. Gave her 10,000 units of anti-tetanic serum (making 70,000 units). Luminal continued for four or five more days.

The difficulty of swallowing lasted seven days and it was four weeks from beginning until she could open her mouth well, this gradually improving. She has made a complete recovery and is doing her own housework.

Comment.

This case, I think, would be considered subacute tetanus. It emphasizes the importance of preventive inoculation in all injury cases, to which the public should be educated.

I wish also to emphasize the importance of large doses of serum, same holds true in diphtheria. I never give less than 20,000 units the first dose if *any* is indicated. The error is in giving too little.

This case at no time had any spinal symptoms, no rigidity of neck, no stiffness of back and no convulsions.

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1. Osler: The principals and practice of medicine. 8th edition. p. 144.

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*Read before the Union County Medical Society.

PROSTATIC HYPERTROPHY.*

By J. M. Salmon, M. D., Ashland.

The problem of the prostate has challenged medical minds since the beginning of history and only in the last quarter of a century has a satisfactory solution been offered. Early writers have been restricted to description of the symptoms, clinical course and unfavorable prognosis of the malady.

Gross, in his System of Surgery, has this to say on the subject: "In entering upon the treatment of this affection, we have to lament the impotency of our art, and the limited nature of our therapeutic resources. These remarks are particularly true of the senile form of the complaint, which hardly ever yields to any mode of management, however judiciously devised or perseveringly employed. Excision of the prostate has been recommended. It does not, however, appear that anyone has really ever had the hardihood or folly to perform it."

The discovery of anaesthesia and antisepsis gave a new impetus to investigation but not until 1901, when Freyer published his method of suprapubic prostatectomy, with report of successful cases, was this operation definitely established as a rational, safe procedure. Modern methods have reduced the operative mortality to approximately four per cent.

The prostate gland really consists of two purely sexual glands which remain separate and distinct during the first four months of foetal life. In some of the lower animals they remain separate during life. In the human being, they approach each other and their mesial surfaces become agglutinated, except along the course of the urethra which they envelop.

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*Read before the Boyd County Medical Society, 1928.

Although united, the twin glands, or lateral lobes, remain distinct, their gland ducts opening into the urethra on either side of the verumantanum. Each gland is enveloped by a fibro-muscular investment which constitutes the true capsule of the prostate. This capsule is continuous over the entire surface of the gland except along the anterior and posterior commissures uniting the lateral lobes. It is intimately connected with the gland structure.

The ejaculatory ducts pass downward in the posterior commissure in the interlobular connective tissue and open into the urethra. There is an outer capsule, derived from the recto-vesical fascia, which encases the gland and is joined by musculo-fibrous bands to the true capsule.

Freyer compares the prostate with an orange whose edible portion is composed of two segments corresponding to the lateral lobes. The white fibrous covering of the segments represents the true prostatic capsule. The rind of the orange represents the outer capsule or recto-vesical fascia. In the enucleation of the gland the inner capsule is removed with the gland.

The hypertrophy affects chiefly the glandular elements of the prostate and is characterized by the development of adenomata which are held together by fibrous tissue. The compression of the glandular and muscular tissue increases the density of the true capsule and in many of these cases, prostatectomy consists in the removal of the adenomata. The symptoms of prostatic hypertrophy are due primarily to pressure and obstruction of the urethra. Secondarily they develop as a result of urinary retention and "back pressure" with resulting changes in the bladder and kidneys. Infection complicates the condition and adds to the danger.

The well-known frequency of micturition, especially at night; the difficulty in emptying the bladder; dribbling and ultimate retention, so commonly observed in prostatics, does not require extended comment. Enlargement of the prostate gland is present in nearly all men past fifty years of age. Many are without symptoms but 34 per cent require treatment. It has been shown that 95% of the cases of obstruction are over fifty years of age and that 75% are between sixty and seventy-five years old.

Treatment of benign hypertrophy of the prostate may be palliative or radical.

Palliative treatment is necessary in those cases in which radical treatment is contraindicated or refused. It consists in relieving the urinary retention by catherization; combatting the infection of the urinary tract by irrigation of the bladder with antiseptic solutions (preferably a 1-8% solution of silver nitrate) and the administration of appropriate drugs. Hygienic measures are prescribed to promote elimination and conserve the vital forces. This involves a strict regime commonly known as the "catheter life". It is a route marked by milestones of infection, cystitis, calculus formation, diverticula, ureteral reflux and kidneys disease.

Exceptionally, patients live for many years of this catheter life, apparently developing an immunity to infection from instrumentation.

Radical treatment removes the obstruction and provides normal drainage by removing the prostate gland.

The decision as to the method of treatment to be adopted in any given case will be influenced by the relative risk of operation as compared with that of palliative treatment.

An accurate estimate of the operative mortality requires a comprehensive view of the general morbidity of sufferers from prostatic enlargement.

Statistics presented by Willius, based upon 705 consecutive cases, show that 42% of them have cardio-vascular disease. Of these, 43% have arteriosclerosis; 36% have marked hypertension and 8% have angina pectoris. It is evident that in these cases the cardio-vascular-renal efficiency and reserve are unstable and that a satisfactory estimation of this reserve must be made before deciding upon the treatment to be instituted.

The causes of death following prostatectomy are as follows:

1. Pre-existing and co-existing organic disease, 50%.

2. Surgical accidents, (hemorrhage, shock, anaesthetic), 4%.

3. Post-operative complications, (sepsis, embolism, peritonitis), 46%.

It is apparent that the immediate operative risk is not great. If the kidney function can be restored to near normal; if the arterial tension is not excessive; if the myocardium is not seriously impaired, and if no other serious organic disease be present, the mortality of operation will be reduced to fifty per cent. If, in addition to this, it may be proved that, by careful technic and after treatment, the danger of post-operative complications is very slight, the mortality will be reduced to practically the percentage of surgical accidents, or from 3% to 5%.

As a matter of record, this is the present status of prostatectomy for benign hypertrophy.

Frayer's mortality in his first 100 cases was 10%; in the second series of 100 cases it was 5%.

The development of adequate kidney function tests, preliminary drainage and building up the cardio-renal-vascular reserve together with improved operative technic and post-operative care have resulted in a reduction of mortality to 3% in many large series in different parts of the world.

Preliminary treatment is necessary in all cases and the most important element of this treatment is drainage of the bladder. Gradual drainage by catheter, either intermittent or continuous, is preferred. In the presence of extreme distension, the gradual decompression by catheter into a reservoir at proper height, as suggested by Van Zwaluenburg, may be indicated. The danger of suddenly emptying a greatly distended bladder has long been recognized.

Sepsis of the bladder is overcome by irrigations of silver nitrate solution. Elimination from the skin is encouraged by hot baths. The fluid intake is increased to 2500 or 3000 cc. daily and the bowels are moved regularly.

The phenolsulphonephthalein return should be not less than 20% and the blood urea not more than 50 mg. per 100 cc. of blood.

The period of preparatory treatment may last from ten days to a month or more; the time is not important but the development of a safe operative condition is of vital importance.

Much has been written and said concerning the relative merits of suprapubic and perineal prostatectomy. The latter procedure has not found general favor among surgeons although it is successfully employed as routine by Young and his associates.

Walters states that it may be preferred when the prostate is small with much prostatitis; when the bladder is contracted as a result of previous operations; when there is tight stricture of the urethra. Judd prefers the suprapubic method and uses it almost exclusively because it permits better exposure, greater accuracy of technic and certainty of good functional result. By this method there is less likelihood of persistent fistula. Since the enlargement is mostly in the bladder, within the external sphincter, the latter will be pushed away from the line of resection if the suprapubic approach is chosen, while by the perineal route one comes directly upon the external sphincter. For surgical reasons it is desirable to perform suprapubic prostatectomy in one stage. The chief advantage is a visible operation, accurate hemostasis and a complete removal of the gland. It permits also, the recognition of any other complication which may be present.

The two-stage operation is frequently indicated and necessitated by impassible stricture requiring a preliminary cystostomy, by calculi or diverticula, by severe cystitis and by marked renal insufficiency. Sacral anaesthesia supplemented by abdominal field block is efficient and safe. It is to be remembered, however, that pulmonary complications may develop after this form of anaesthesia.

Eisendrath has recently reported a case which is illustrative. The patient, a man of 67, had undergone the first stage cystotomy and two calculi had been removed. Ten days later the prostate was removed under sacral anaesthesia and field block (novocaine). Eight hours afterward, the temperature rose to 104°F., and on the following morning, there was consolidation of the base of the ight lung, evidently of embolic origin.

Suprapubic prostatectomy, in most cases, is done in plain view. A special bladder retractor gives excellent exposure. The bladder mucosa over the enlarged gland is accurately cut and the gland is enucleated with finger or instrument. The cavity is inspected for small adenomata. Hemorrhage is controlled by interrupted suture of the margin of the capsule and mucosa. If necessary, a Hagner-Pilcher hemostatic bag is inserted and its urethral tube anchored to a tripod resting upon the pubic bones. A large drainage tube is inserted into the bladder and the wound closed in layers. A small drain is passed to the space of Retzius. If the hemostatic bag is used, it may be reflated after sixteen hours and removed if no hemorrhage occurs. The suprapublic drain tube is left for a week because of the possibility of secondary hemorrhage. Secondary hemorrhage is due to the sloughing of prostatic or capsular tissue and may occur regardless of the method of enucleation. The following case illustrates this phase:

H. S., aged 62, had acute retention October 24, 1927. He had regular catheterization and lavage until November 7th, 1927, when functional tests showed satisfactory return. Blood pressure, systolic, 150; diastolic, 110. The heart rhythm was irregular but no murmurs and no enlargement. Under novocaine anaesthesia, sacral and abdominal field block, the prostate was removed in the usual way and the margin of the bladder, at the line of section of the prostatic capsule, was sutured. All bleeding points were caught and ligated with fine cat-gut. For additional security against hemorrhage, a Hagner-Pilcher bag was introduced and distended with water. There was no active hemorrhage at the conclusion of the operation. The post-operative course was satisfactory. On the morning of the sixth day there was sudden hemorrhage. The dressings were quickly stained and there was vesical tenesmus. The patient was taken to the operating room and the wound opened. The bladder was full of blood and clots. These were removed and a pack of gauze inserted into the capsular cavity. The bleeding stopped and the patient made an uneventful recovery. There is now no residual urine and bladder control is normal. This is the only case of secondary hemorrhage which I have had.

The post-operative care of prostatectomy patients is of the utmost importance and requires special nursing with frequent attendance by the surgeon.

In conclusion, prostatic enlargement resulting in urinary retention, frequency or residual urine amounting to 60 cc. or more, is a surgical condition. Modern methods of management of prostatic hypertrophy forbid immediate prostatectomy.

It is possible, in most cases, to overcome actual or potential uraemia and to improve the cardio-vascular-renal reserve.

The visible, one-stage supra-pubic prostatectomy minimizes the risk of surgical accidents.

Regional anaesthesia is satisfactory and less harmful than inhalant anaesthetics in these cases.

Connections Between Fever, Thyroid and Suprarenals.—Experimenting on cats with various means of producing fever, Borchardt found that neither the presence of the thyroid and parathyroids nor that of the suprarenals is necessary for the occurrence of fever, though their absence delays it or limits its height. When, however, the thyroid with the parathyroids and both suprarenals were removed, it proved impossible to induce fever, except in animals in late gestation or after administration of thyroxin or synthetic ephedrine. In these cases fever could be induced by administration of tetrahydronaphthylamine. Cats with totally denervated livers respond with fever (delayed) to puncture of the corpus striatum or of the thalmus. In these cats administration of tetrahydronaphthylamine results in fever only a little lower than that which would be induced by this means in normal animals. Decapitated or decerebrate cats do not respond with fever even to tetrahydronaphthylamine.

WOMAN'S AUXILIARY NOTES

SIXTH ANNUAL MEETING, WOMAN'S AUXILIARY, KENTUCKY STATE MEDICAL ASSOCIATION.

The opening session of the Sixth Annual Meeting of the Woman's Auxiliary to the Kentucky State Medical Association was held in Room Number Six of the University Building, Eastern State Normal School, Richmond, Kentucky, at 2:30 p. m., Tuesday, September 11th, 1928, the President, Mrs. Wm. M. Martin, Harlan, presiding. A quorum was present.

Following the invocation by Mrs. J. A. Arbuckle, Richmond, the Address of Welcome was delivered by Mrs. H. C. Jasper, Richmond, President of the Madison County Auxiliary. The Response was made by Mrs. V. A. Stilley, Benton.

The roll call showed eight officers, seven county presidents and eleven delegates present. Telegrams regretting absence due to illness were received from Mrs. Allen H. Bunce, Atlanta and from Mrs. H. M. Meredith, Scottsville. The Secretary was instructed to send Mrs. Bunce and Mrs. Meredith notes of sympathy. The minutes of the last meeting in Owensboro were read and approved.

The minutes of the Executive Board Meeting held at 10:30 a. m., September 11th, 1928, were read and approved. (Appended)

At this time the official spokesman of the Kentucky State Medical Association arrived and the Past President, Dr. R. Julian Estill, Lexington, addressed the Auxiliary on "Child Care." The President, Dr. John Blackburn, Bowling Green, discussed the "Progress of Medicine" and expressed the hope that the Auxiliary would continue to progress in its growth and usefulness. Dr. A. T. McCormack spoke on "Increased Opportunities and Advanced Education for Women."

At this time the prizes for the best county Scrap Book and for the Golf Tournament were shown. Mrs. A. T. McCormack discussed the Historical Data Project, emphasizing that Kentucky is rich in medical historical facts concerning the practice of medicine and that these facts should be collected for the edification of future generations. Deep appreciation has been expressed by the members of the medical profession for all the material collected in the last two years. She, also, suggested that the Auxiliary do something definite to commemorate the heroic Jane Crawford, the indomitable patient upon whom Dr. Ephraim McDowell, without the aid of an anaesthetic, performed the first ovariotomy in Danville, Kentucky in the year 1809.

Adjourned to meet at 9:30 a. m., Wednesday, September 12th.

(Mrs. J. W. Sams) LDA B. SAMS.

Second Session.

The second session of the Annual Meeting held Wednesday, September 12th, opened at 9:30 a. m. in the same room with the President, Mrs. Wm. M. Martin, in the chair. A quorum was present. The invocation was given by Mrs. J. T. Reddick, Paducah.

The reports of the officers, councilors and delegates were called for in order. (These reports are appended.)

Mr. C. P. Loranz, Manager of the Southern Medical Association, arrived and following introduction by Dr. A. T. McCormack, extended a hearty invitation to all members to attend the next annual meeting of the Southern Medical Association in Asheville and to bring their husbands with them.

Dr. T. Atchison Frazier of Marion delighted the audience with his interesting and instructive talk on "Some Birds I Know" and with his imitations of the familiar bird calls.

Next in order was the installation of the new President, Mrs. J. T. Reddick. (Her response is appended.) Calling attention to the needs of health education in our schools, particularly in our rural schools, the President called for a resume of the work of the Texas State Auxiliary in the eradication of Tuberculosis and Malaria. This was given by Mrs. G. A. Hendon, Louisville.

Following discussion concerning the advisability and the possibility of editing another issue of the Journal, a committee to investigate the matter was appointed with Mrs. Irvin Abell, Chairman, Mrs. V. A. Stilley, Mrs. A. T. McCormack and Mrs. P. E. Blackerby.

The following committee was appointed to devise plans for the Jane Crawford Memorial Fund: Mrs. A. T. McCormack, Chairman; Mrs. Graham Lawrence, Mrs. V. A. Stilley, Mrs. Wm. M. Martin, Mrs. P. E. Blackerby and the President, ex-officio.

There was considerable discussion concerning Ways and Means for the coming year but no action was taken.

Mrs. V. A. Stilley called attention to the fact that the husbands of three of the members had died during the past year and moved that letters of sympathy be sent to them by the Secretary. This motion was amended by Mrs. Irvin Abell to include a letter of sympathy to Mr. R. E. Wathen, whose wife, Mrs. Ada Walsh Wathen, had recently died, the first of our Auxiliary members to pass away. Motion carried.

The report of the Resolution Committee was read. (Appended)

The Nominating Committee reported as follows:

President—Mrs. J. T. Reddick, Paducah.

President-Elect—Mrs. P. E. Blackerby, Louisville.

First Vice-President—Mrs. H. M. Meredith, Scottsville.

Second Vice-President—Mrs. R. L. Collins, Hazard.

Third Vice-President—Mrs. M. W. Steele, Corbin.

Fourth Vice-President—Mrs. H. C. Jasper, Richmond.

Corresponding Secretary—Mrs. O. W. Kidd, Paducah.

Recording Secretary—Mrs. J. W. Sams, Crestwood.

Treasurer—Mrs. W. G. Salisbury, Louisville.

Parliamentarian—Mrs. S. W. Bates, Louisville.

Mrs. Stilley moved the election of these officers, seconded by Mrs. Ed Palmer. Other nominations were called for from the floor. None were made. Mrs. J. H. Parker moved that the nominations be closed and that the Secretary cast the ballot. Seconded by Mrs. V. A. Stilley. The Secretary cast a ballot for each of the nominees reported by the committee and they were declared elected unanimously.

The President then presented the newly elected officers, each of whom made a gracious acknowledgement.

Adjourned.

IDA B. SAMS, Secretary Pro Tem.

Executive Board Meeting.

The Executive Board of the Woman's Auxiliary of the Kentucky State Medical Association met in Room Number Six of the University Building, Eastern State Normal School, Richmond, at 10:30 a. m. September 11th, 1928. The President, Mrs. Wm. M. Martin, presiding. A quorum was present. Following the invocation by Mrs. Reddick of Paducah, Kentucky, Mrs. J. W. Sams, Crestwood, was elected Secretary protem becuase of the absence of Mrs. Raymond Evans, the Secretary. Roll Call showed fifteen (15) present and several guests. The following Nominating Committee was elected: Mrs. V. A. Stilley, Mrs. O. D. Brock, Mrs. R. J. Estill, Mrs. Ed Palmer, Mrs. W. F. Boggess.

Then the President appointed the following Committee on Resolutions: Mrs. O. W. Kidd, Chairman, Mrs. W. E. Gardner, Mrs. John Blackburn, and Mrs. M. W. Steele.

The two following committees for awards of prizes were appointed:

Scrap Book Committee: Mrs. J. W. Sams, Mrs. G. A. Hendon, Mrs. W. S. Hargrove, Mrs. G. L. Thompson, Mrs. J. H. Rutledge.

Golf Tournament Committee: Mrs. Irvin Abell, Mrs. Alfred Weatherby and Mrs. Ed Palmer.

Following the discussion on Constitution and By-Laws, motions were carried to submit to the County Auxiliaries two amendments in the State Constitution. They are:

Article Six: "Officers" Omit the last sentence which reads, "The Secretary and Treasurer may serve two years. All others officers, one year."

Article Five: "Executive and Advisory Boards" Add "The President of the State Medical Association annually shall be requested to appoint three (3) members of the council to act as an advisory board to the President and officers of The Woman's Auxiliary.

It was also suggested that County Auxiliaries make the same requests of the President of the County Society. The work of the State Editor and need of co-operation with her from the County Secretaries and publicity chairmen was considered. Ways and Means of increasing the State Treasury followed the report of the Treasurer. No definite plans were determined.

Adjourned.

IDA B. SAMS, Secretary Pro-Tem.

EXECUTIVE BOARD MEETING

The first Executive Board Meeting of the new officers for 1928 and 1929 was held at 7:30 p. m. Wednesday, September 12th, 1928 in Room Number Six, University Building, Eastern State Normal School, Richmond, the President, Mrs. J. T. Reddick, presiding. A quorum was present.

Following considerable discussion, a Committee on Ways and Means was appointed, consisting of Mrs. R. L. Collins, Hazard, Chairman; Mrs. G. L. Thompson, Wickliffe, and Mrs. R. M. Phelps, Richmond, to increase the sum in the Treasury.

Mrs. P. E. Blackerby moved that the Committee ask each county Auxiliary to raise a fund in any way preferred sharing the net proceeds equally between the State and County Auxiliaries. Carried.

Upon report of the Journal Committee that it seems to be impossible to do anything definite at this time, the motion carried to defer action until after the first of January.

Objectives for the coming year were considered and it was determined to continue with those of the preceding year; organization, historical medical collection, Hygeia Circulation and add the development of the promotion of the "Jane Crawford Memorial Fund." To start the "Jane Crawford Memorial Fund", the President, Mrs. J. T. Reddick contributed the first dollar. She was followed by the following ladies who each contributed a dollar: Mesdames McCormack, Stilley, Martin, Thompson, Parker, Foley, Hendon, Salisbury, and Miss Jane Palmer.

After a discussion of the general welfare of the organization, upon motion, the Board adjourned.

IDA SAMS.

PRESIDENT'S ADDRESS

By Mrs. J. T. Reddick, President, Woman's Auxiliary, Kentucky State Medical Association, Richmond.

An incoming president, asked of her councilors what she should talk about after being introduced and they said "about five minutes." I hope I will not tire you, for my remarks will be brief.

When God decided to make a helpmeet for man he must have had the need of the physician in mind, for of all men he needs just the right wife. She must have patience, courage, tact of an unusual degree, and have the ability to entertain herself, for she cannot expect much of a social nature from a busy doctor. More is the pity, for of all men he needs and deserves more relaxation than he really gets. He is the only man working against his personal income, for he is ever grasping new ideas for the prevention of disease, so, of all men, I think his wife must mean more to him.

Mrs. Addine C. Myers of Georgia gives advice in these lines:

"Into your keeping he has given his heart.
His professional life is a thing apart—
A life that is built on a vision Divine,
To minister to all suffering mankind,
A service to which he is giving his life.
But remember his happiness is made by his
wife,
So wake up to the vision of what you can do,
To the part in this service that is open to you."

As an Auxiliary we appreciate our State Board of Health and are proud of its members. While Texas points with pride to the fact that she had the first county Medical Auxiliary, the first State and the first Junior Auxiliaries, we can be proud of our State Board of Health. Mrs. Cora Wilson Stewart says, "As a Kentuckian I take pride in the work of our State Board of Health and in the reputation it has made for itself at home and abroad."

Most of the other states frankly admit that Kentucky has outdistanced them in health work. And may I pause here to give reverence to the sacred memory of Dr. J. N. McCormack, who was the pioneer in this work, and to his son who is following in his footsteps. And so, Mrs. Stewart continues by saying, "she could think of nothing Kentucky women could do that would be more nobly constructive and humane than to organize themselves solidly behind the State Board of Health."

A president seeks advice and I am hoping for much. I am your servant to do your will. The Auxiliary has already made me acquainted with some very fine women, and I hope to meet, know and love many more of you. I want to close with a little tribute to a doctor's wife that came to my hand a short time ago.

"An Appreciation Dedicated to the Physician's Wife."

"Bless your soul because you are the silent partner of one playing the greatest role in life,—that of relieving suffering humanity. You help him, encourage him and cheer him in a thousand different ways; answering the tintinnabulations of the door and telephone bells; keeping up with his calls, visiting the sick—an angel of mercy, as it were and cooking the doctor's victuals if need be.

"When, to the tune of Mendelssohn, you tripped down to the altar and became a doctor's wife, you took upon yourself a grave responsibility, for life itself often depends upon you, who are the unknown equation in the practice of medicine.

"Your alertness in locating the doctor and your knowledge of emergency treatment has kept many patients on this side of the River Jordan.

This selfish old world of ours doesn't give very much credit but you are an unheard of Florence Nightengale; although not on the battlefield of war, you are "carrying on" by assisting the doctor to combat disease on the daily battlefield of Life and Death.

"Bless your soul."

We cannot see the end of the way,
That winds and climbs and falls,
Not even the portion set for today,
Nor what next hour befalls,
But with face to the breeze, and with steady head,
We can walk the road as it opens ahead.

We cannot fathom the ways of God,
The why and how of life,
Often with questioning heart we plod,
Through the land of toil and strife,
But we can choose the best today,
And the best will lead in the Father's way.

TREASURER'S REPORT

By Mary Palmer Salisbury, Louisville.

The records of the Auxiliary were turned over to me a year ago with a bank balance of $469.40.

With collections from various sources throughout the past year this totaled $736.44. The amount collected as dues was $180.50; the amount received from the Kentucky State Medical Association as commission on advertisements secured by the women of the Auxiliary and still running in the Kentucky Medical Journal amounted to $49.84; the commission received on subscriptions of Hygeia amounted to $36.70. Other than from these three sources there has been no money coming into the Auxiliary Treasury this year.

Our expense this year has totaled $660.04, leaving us less than one hundred dollars in the bank. Of course, one half the dues collected by the State are paid to the Auxiliary to the American Medical Association and one dollar for each organized county is paid the Auxiliary to the Southern Medical Association. The National organization has been paid $80.50 and the Southern Association has received $16.00.

All bills up to July 1st have been paid and filed with the Auxiliary records. One bill for $1.35 t othe Meffert Equipment Co., has not yet been paid.

The balance in bank as per statement of September 1st, 1928, is $94.00. The following checks are still outstanding:

No. 74, $3.71, Mrs. Geo. C. Leachman, Louisville.

No. 80, $12.00, Mrs. Irvin Abell, Louisville.

Adding these and the 11c state tax charged the account by the bank, we are left a balance of $78.29 with which to start this next year.

Since closing my books on July 1st, I have received the following checks.

3 checks from the A. M. A. for subs. to Hygeia, $1.25 each	$ 3.75
1 check from the A. M. A. for subs. to Hygeia	2.75
1 check from the A. M. A. for subs to Hygeia	2.50
1 check from Miss Mayme Sullivan, State Chairman, for subs. to Hygeia	3.75
	$12.75

Dues—Mrs. Guy P. Grigsby, Louisville, Jefferson Co.	$ 1.00
Dues—Mrs. J. S. Brown, Ghent, Carroll County	1.00
Dues—Mrs. R. C. Burrow, Cunningham, Carlisle County	1.00
Dues—Ballard County Auxiliary, Wickliffe	2.50
Dues—Carlisle County Auxiliary, Bardwell	2.00
Dues—Trigg County Auxiliary, Cadiz	2.00
	$ 9.50

Total amount received since July 1st. . $18.50

These dues and commissions will be entered on the books for the year 1928-1929.

A complete itemized statement of the past year's business can be found on pages 469-470-471, Exhibits I and J of the September, 1928, issue of the Kentucky Medical Journal.

ANNUAL REPORT OF STATE HYGEIA CHAIRMAN OF THE WOMAN'S AUXILIARY TO THE STATE MEDICAL ASSOCIATION

By Mayme Sullivan, Louisville.

At our last annual report, we only had 27 subscribers to Hygeia, and, while we should be able to report a greater increase, we feel somewhat encouraged with the following subscriptions. There are probably others which have not been reported to me:

Graves	3
Harlan	18
Jefferson	155
McCracken	6
Perry	25
Total	207

I feel that great good was accomplished by the six-months subscriptions to Hygeia which the State Medical Association and the Woman's Auxiliary sent to our Legislators. These organizations are to be commended for this act.

I am very much interested in the $25 prize offered by the State Medical Association to the Councilor who would organize an Auxiliary in each county in her district having a county medical society. This money is to be spent for subscriptions to Hygeia, and will be left to the winner as to where they are to be sent. I only hope that each of the eleven councilors will win this prize.

Doubtless a number of the members have read the announcement of the grand prize offered by an "unknown friend" through Mrs. J. O. McReynolds. The prize to be awarded to the State Auxiliary sending in the first one thousand subscriptions to Hygeia after September 1, 1928. The State Auxiliary may then award the prize—a new Ford car or a trip to Europe—to the member of a physician's family sending in the largest number of subscriptions ninety days after the award to the State.

REPORT OF THE HISTORICAL COMMITTEE

By Mrs. W. F. Boggess, Louisville.

Sir Walter Scott said: "It is impossible for me to conceive a work which ought to be more interesting to the present age than that which exhibits before our eyes our fathers, as they lived, accompanied with such memorials of their lives and characters as enables us to compare their persons and countenances with their sentiments and actions."

This is the first great venture of a Woman's Auxiliary to collect the "Life Sketches" of those who have carved their indelible imprint upon the obelisk of time, and placed our beloved State of Kentucky in the foremost ranks of medical literature. We might well speak of it as the "Great Beau Geste" of our very new organization.

Dr. Irvin Abell has kindly placed at our disposal a reprint of his Presidential Address: "A Retrospect of Surgery in Kentucky," delivered before the Southern Surgical Association at Louisville, December 16, 1925 and it is now left to us to collect the history of the pioneer practitioners and that of the dawn and the growth the Medical Specialists in Kentucky.

Will you kindly take back to your County Auxiliaries this request from your Historical Committee:

"Please send to your Committee any knowledge that you may have or may be able to obtain, concerning our pioneer doctors and those, who followed,—each leaving the profession through his own life, better and greater than he found it.

Now for a moment let's look at the background of our Historical Venture.

The Medical Department of the Transylvania University, Lexington, established in 1799, was the second Medical College in the whole United States.

Then in 1838, the faculty of the Transylvania Medical School, desiring the greater clinical facilities afforded by Louisville, moved the Medical Department to Louisville and established the Medical University of Louisville,—located as you remember at Eighth and Chestnut Streets,—and it became the first Medical University west of the Alleghenies.

Dr. Richard Lee Boggs of Greenville, Kentucky graduated in the first graduating class, and so interesting were the happenings of his pioneer career, that many of them, at the time, were written up by Harpers. A sketch of Dr. Boggs' life is now being prepared. Quoting from Dr. Abell's address:

"The earliest development of surgery in Kentucky centered around two towering and dominant personalities, Ephriam McDowell of Danville and Benjamin W. Dudley of Lexington. Both were Virginians by birth—coming with their families to Kentucky in 1792, shortly after Kentucky's admission as a state to the Union, for in our historical background the year 1789 is memorable for three great events, i. e., the establishing of the Supreme Court of the United States, the beginning of the French Revolution and Kentucky becoming a State.

So we see Kentucky, as a state was but three years old, when Ephriam McDowell and Benjamin W. Dudley added their names to her roster of medical achievement and fame.

The success of our historical undertaking will depend upon each of our Auxiliaries lending a helping hand.

WHAT TEXAS IS DOING

By Mrs. G. A. Hendon, Louisville.

Texas has a population of 5,000,000, an area of 171,000,000 acres. The distance from east to west is more than 800 miles, and from north to south some 1200 miles. There are 242 counties, and 53 now have active auxiliaries, each of which is stressing some piece of work of especial need and benefit to that county or community.

In the northern part of the state in thickly settled negro communities, tuberculosis is increasing in an alarming manner. Doctors' wives are concentrating their efforts in placing in the hands of school children the Primer on Prevention of Tuberculosis. Thousands of primers have been distributed through the cooperation of State Public Health Association and the National.

In East Texas the women are outlining plans for the eradication of malaria.

In South Texas, the population is largely Mexican. There every phase of the health education has been put into practice.

Under the teaching of Mrs. E. V. DePew, the past-president, everybody, Mexican, negro and white child has been inoculated with the health germ.

In West Texas the doctors' wives work through and with the City and County Health Units and are assisting in the birth registration campaign. The greatest achievement in Texas is that of the moving picture health films as a medium of presenting the health education program. This method has been the dream for years of Mrs. McReynolds and is now realized, for a fund of several thousand dollars is now in the Auxiliary treasury for equipment and films.

Surely the door of opportunity for service is just opening.

REPORT OF COMMITTEE ON RESOLUTIONS

In consideration of the cordial hospitality extended by the Madison County Medical Society and its Woman's Auxiliary; to the President and Board of Regents of the Eastern State Normal School; to Mr. Coats and Miss Coats; to "The Richmond Register" for the many courtesies rendered, we, the visiting members of the State Auxiliary, extend our sincere appreciation. For their untiring efforts in showing us the points of interest in their historic county and making our visit to Richmond a most memorable one, we wish to express our gratitude.

We also wish to thank our retiring President. Mrs. W. M. Martin, and other retiring officers for their effective efforts in extending the work and increasing the membership of the Woman's Auxiliary.

Mrs. O. R. Kidd, Chairman,
Mrs. John H. Blackburn,
Mrs. M. W. Steele,
Mrs. W. E. Gardner.

REPORT OF COUNCILOR OF THE FIRST DISTRICT

Mrs. V. A. Stilley, Benton.

Visited twelve of the thirteen counties.

Wrote eighty letters.

Something like twenty-five news items published.

Held conferences with doctors' wives or other influential women in all of the counties visited.

Organized two auxiliaries and reorganized one.

Secured four Hygeia subscriptions.

Collected valuable history concerning six doctors. (Pioneers)

Health talks made to several schools and clubs.

BOOK REVIEW

CRAWFORD W. LONG AND THE DISCOVERY OF ETHER ANESTHESIA. By Frances Long Taylor.

This book presents in a very interesting manner, the life and work of Dr. Crawford Long. Its interest lies in the intimacy of the life of this splendid old practitioner, giving much history of the hardships endured by the doctor of those days. Without doubt it establishes clearly, Dr. Long's claim to the discovery of ether anesthesia.

Paul B. Hoeber, Inc., Publishers, New York City. Price, $4.00, net.

NEWS ITEM

Nora D. Dean, M. D., announces the opening of an office at 746 Francis Building, Louisville, Ky. General practice with special attention to anaesthesia. September 15, 1928. Hours: 4 to 5 p. m. Office, City 3631; Highland 3324; Res., South 3555.

Dr. Bernard Asman, Dr. M. H. Pulskamp announce the removal of their offices to Suite 605 Breslin Medical Arts Bldg., Third and Broadway.

Tuberculosis of the Breast Associated with Mammary Cancer.—Tramontano's case occurred in a married woman, aged 42. The tuberculous infection of the breast was primary, from the clinical point of view, having been transmitted through the milk-ducts. The carcinoma developed when the tuberculosis was clearing up, which may confirm what has been observed by others, both clinically and experimentally, that there is an antagonism between tuberculosis and cancer, at least as long as the tuberculous infection is fully active. The marked development of connective tissue in the breast caused by the preceding tuberculosis may have determined the relatively benign course of the carcinoma.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879

Subscription Price $5.00
Edited Under Supervision of the Council

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COUNTY SOCIETY REPORTS

Franklin: The Society met in regular monthly session Thursday, September 6, 1928 at 12:00 noon, in the writing room of the Capital Hotel.

Guest, Dr. Lillian South, State Bacteriologist, who urged every member to attend the State Meeting to be held at Richmond, September 10th to 13th, telling of some of the important features of the program, especially in regard to the Tularemia Exhibit.

Committee reports: Drs. Coblin and Patterson, a committee on membership was given further time.

Committee on resolutions on the death of Dr. T. R. Moore, consisting of Drs. R. B. Ginn, C. T. Coleman and L. T. Minish, reported a set of resolutions which were unanimously adopted.

Drs. John Patterson, J. P. Stewart and E. C Roemele were appointed as a committee to draft suitable resolutions on the death of the mother of Dr. L. T. Minish.

Dr. Patterson had charge of the program and presented a most interesting paper on the subject, "Regrets in Delayed Operative Cases," which was freely discussed by every member present.

Dr. E. C. Roemele will have charge of the October meeting.

Resolutions of the Franklin County Medical Society on the Death of Dr. Thomas Rodmon Moore.

Dr. Thomas Rodmon Moore, who for many years practiced medicine in Frankfort and Franklin County, the County in which he was born and reared, all during his active practice he was an honored member of the Franklin County Medical Society.

Dr. Moore departed this life on the first day of July, 1928, at the age of 51. It is to be regretted that this noble physician who was so active and in the prime of his life and whose usefulness to his family and society should have been taken so suddenly. Dr. Moore was a man of high and noble instincts, devoted to his family and a true and tried friend of the medical profession which qualities were exhibited in his daily life. He enjoyed the highest confidence of his associates and friends.

Resolved: That in his passing on, this body loses an honored and highly respected member of the profession; his wife a devoted help-mate. his son and daughter a loving father and the public a useful and faithful citizen and servant and that we express the heartiest condolence and sincere sympathy to the bereaved family.

L. T. MINISH,
C. T. COLEMAN,
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L. T. MINISH, Secretary.

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KENTUCKY MEDICAL JOURNAL

Being the Journal of the Kentucky State Medical Association

Published Monthly under Supervision of the Council

Editorial and Business Office, Corner State and Twelfth Streets. Subscription Price, $5.00 Single Copy, 50 cents

Entered as second-class matter, Oct. 22, 1906, at the Postoffice at Bowling Green, Ky. Acceptance for mailing at special rate of postage provided for in section 1103, act of October 8, 1917, authorized May 25, 1920.

Vol. XXVI. Bowling Green, Ky., December, 1928 No. 12

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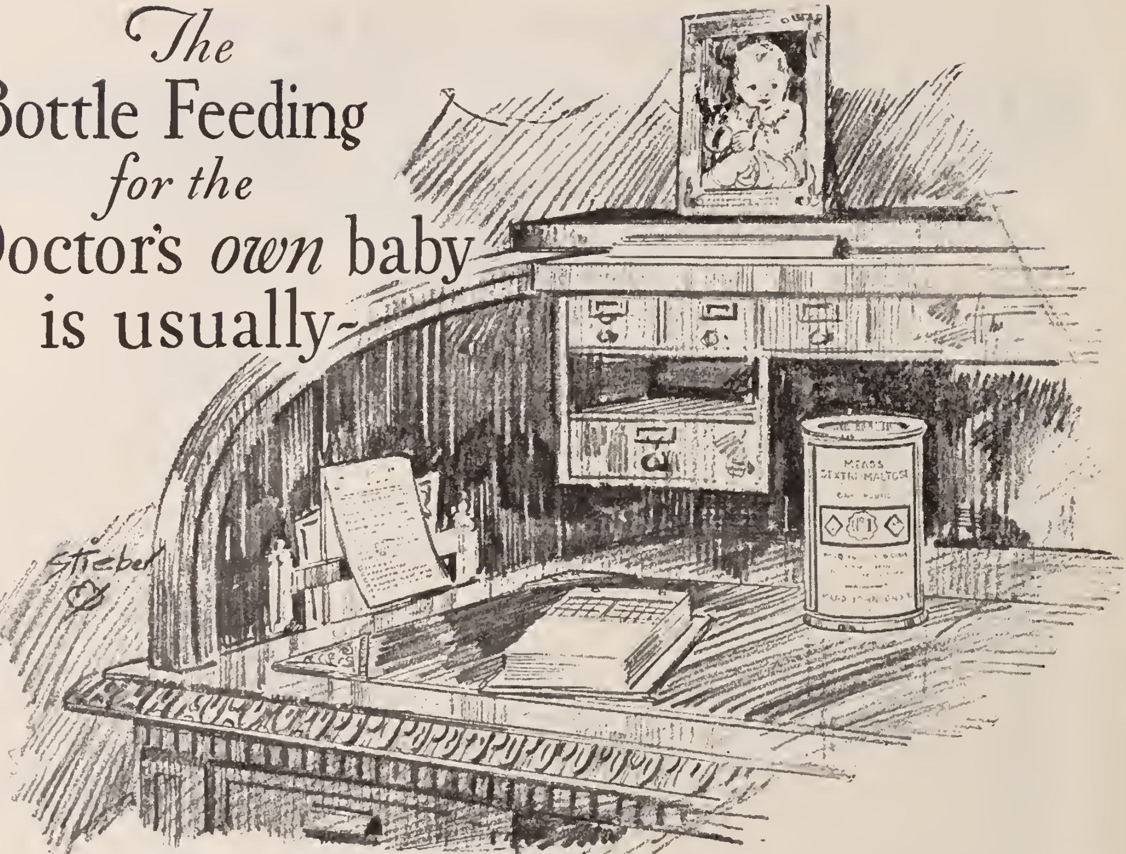

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KENTUCKY MEDICAL JOURNAL

BEING THE JOURNAL OF THE KENTUCKY STATE MEDICAL ASSOCIATION

Published Under the Auspices of the Council

VOL. XXVI. BOWLING GREEN, KY., DECEMBER 1928 No. 12

EDITORIAL

DR. JOHN A. SNOWDEN

Dr. John A. Snowden, Sr., of Winchester, was presented a beautiful silver cup by the Clark County Medical Society, at their meeting, in recognition of his service to the medical profession in that county. Dr. Snowden has been in active practice for more than fifty years.

He is a graduate of Louisville Medical College and took up his practice at Kiddville, this county. After service there for many years, he moved into the city, and took up his practice.

Dr. Snowden was born at Rabbittown in Goode's precinct, May 5, 1852. He received his literary education in the local school at Rabbittown and Kiddville, select school at Kiddville by C. W. Boone and John Gaines. He began teaching school January, 1872, at Pine Hill, taught schools in Clark and Powell counties. Last school in Powell county in 1875. Began reading medicine under Dr. Glenmore Combs at Schollsville as preceptor. In the early spring of 1876 took first course of lectures at Louisville Medical College 1876.

First location Rabbittown, then two years in Goode's precinct, Right Angle, Wade's Mill, Kirksville, Paint Lick, then to Winchester, December 1, 1910. Graduated from Louisville Medical College, Post Graduate Course, Miami Medical College, Cincinnati, also Post Graduate Course Northwestern University of Chicago.

The doctor likes to tell a little story occasioned by his special "preacher-tailed" coat. On a vacation trip in another state he passed for several days a place where some colored boys played. After some days one of the little fellows said: "Mister, is you preacher?"

"Yes," said the doctor, "why do you ask that?"

"Well," the little fellow said, "you dress like a preacher, and you looks like a preacher, but you don't talk like a preacher."

The Journal joins with the Clark County Medical Society in extending congratulations for his golden jubilee in the practice of medicine.

COUNCIL ACCEPTS OPTOCHIN

In compliance with the request of the Council on Pharmacy and Chemistry the name "Numoquin" has been changed to "Optochin."

Optochin is used not only in the treatment of pneumonia but also in such conditions as pneumococcic meningitis and pneumococcic serpiginous ulcers. In the treatment of pneumonia it is administered by mouth.

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OFFICIAL ANNOUNCEMENTS

OFFICIAL MINUTES OF THE SEVENTY-EIGHTH ANNUAL SCIENTIFIC SESSIONS OF THE KENTUCKY STATE MEDICAL ASSOCIATION, HELD AT RICHMOND, SEPTEMBER 11, 12, 13, 1928.

First Scientific Session, Tuesday, September 11.

The First Scientific Session of the Seventy-eighth Annual Meeting of the Kentucky State Medical Association was called to order at nine-twenty o'clock, Tuesday, September 11, in the University Building of the Eastern Kentucky State Normal School, Richmond, Kentucky, by President R. Julian Estill, of Lexington.

PRESIDENT ESTILL: I will ask Dr. W. L. Clark, Pastor of the Methodist Episcopal Church of Richmond, to pronounce the invocation.

W. L. CLARK: Gracious Lord, we thank Thee that as we enter upon the duties and responsibilties and pleasures of life, we may invoke Thy blessing to be upon us. Thou hast made us intellectual and social and spiritual beings. We give Thee praise for Thy wonderful creating hand that has given to us our existence in this world. Then we thank Thee that Thou has called men into this noble profession to study the mechanism of our bodies, and thereby to give to us the benefits of conquering disease, and enabling us to be more comfortable in the world in which we live. To this end we pray that the rich ble ing of Heaven shall be upon these men, who have consecrated their lives to better convenience and comfort of the human family. May they be wise in their discussions in this meeting, and may those things come to pass during their assembling in our midst that will prove a blessing to humanity and the means of relieving suffering as we go forward in the journey of life.

May Thy blessings be upon each one of us whatever we live, whatever we do. May the will of God be wrought out in our lives. Forgive us of our sins and in Heaven save us at last, for Christ's sake. Amen.

PRESIDENT ESTILL: His Honor the Mayor has been called out of town. Judge John Nolan has kindly consented to deliver the address of welcome. (Applause)

JUDGE JOHN NOLAN: Mr. President, Ladies and Members of the Kentucky State Medical Association: Richmond is indeed fortunate to be able to greet you in this your Seventy-eighth Annual Meeting.

There is something about the profession to which you belong that commands the very highest respect of society. If there is one thing that I should like to be able to do it is to be able to build a house for another to live in; another thing, to be able to lead people from the ways of error into the paths of truth; and perhaps the highest of all the vocations of life is that of the great physician, the doctor.

Richmond and Madison County feel signally honored to have you here on this occasion. This, as you know, is one of the great historic counties of the commonwealth. It was here that Boone fought, on Madison County soil, that civilization west of the Allegheny Mountains found its early beginnings. It was to this county that those hardy pioneers came across the mountains to lay the foundation of this great commonwealth. Madison is an historic county, as you know. Richmond, the county seat of Madison, established more than a century and a quarter ago, has from its earliest beginnings been more or less a center of learning and of culture, and hence we deem it fitting and proper that this great learned profession should hold its annual meeting at Richmond.

The altruistic and humanitarian motives that actuate the doctor, his deeds of mercy and charity, the fact that he goes about to relieve suffering and pain and to prolong human life, and he not only does that but he cleans up the waste places of the earth and makes homes safer to live in, cities cleaner and purer and more healthful—this character of work places you in a position of the very highest respect of all the learned professions.

I might tell you something about the spirit that has always actuated the medical profession and has been more or less the spirit of this community from its earliest beginnings. Richmond has been peculiarly fortunate in being the beneficiary of many public benefactions. The land upon which the town site more than a century and a quarter ago was builded, was donated by one John Miller, the first public donation of a public spirited citizen to build the town in the county of Madison that was to become its county seat.

The next benefaction was that of one Robert Caldwell. In 1816 he gave a spot of ground located in Richmond to be used as a school and which was used as a county seminary for a number of years and which was later donated to the city of Richmond as a public school site.

In 1834, the public spirited citizens of this county by private subscription, got together the funds to purchase the site and establish a school for girls, known as the Old Madison Institute, and that was conducted here in our midst as a private institution endowed by the generosity of our citizens from that date down to 1919, when it was given to the city of Richmond as a site to be dedicated and used for high school and public school purposes.

I would invite your attention to the beautiful public high school building on the hill which stands as evidence of the generosity and public spirit of the earlier citizens of Madison County.

In 1874, as a result of public donations by citizens of this county, $110,000 was raised and the site was secured and the location of Central University was procured on this campus. This beautiful campus upon which now is located the Eastern Kentucky State Normal School and Teachers' College is likewise a monument to the generosity and public spirit and love for learning and culture and education which has always characterized and actuated our citizens.

Another public donation here was made by a prominent citizen, the Honorable Brutus J. Clay, who in memory of a deceased wife gave the property upon which is located the Pattie A. Clay Infirmary. You doubtless know of this hospital and will be interested in visiting it and seeing that it has only recently been constructed into a modern, fireproof, first class hospital, another monument to the generosity of public spirited citizens of Madison County.

Only recently, in 1920, one of the last line of a distinguished family died in our midst, a lineal descendant of that great physician, Dr. Ephraim McDowell, and as the result of a provision in her will the Irvin-McDowell Memorial Hospital is located here, now known as the United States Trachoma Hospital, being conducted under your Association in connection with the United States Public Health Service.

I call your attention to these things in order that you may visit these institutions which I think will be of so much interest to you, in order that you may feel at home in a community where I think the atmosphere will be most congenial to a body of men belonging to the learned profession to which you belong.

We also have in this county Berea College, located within fifteen miles of the southern end of this county, which, as you know, has for a number of years been doing a magnificent work in Eastern Kentucky and Tennessee and Carolina, ministering to the educational needs of the poor in that great Appalachian section of America, and it too is one of our boasted institutions which I hope, while you are in our midst, you will have the opportunity to visit.

It is a very happy privilege to be able to greet you, and on behalf of the city of Richmond and of Madison County to welcome you in our midst, and we hope that you will enjoy every moment of your stay in Richmond. (Applause)

PRESIDENT ESTILL: We have with us this morning our host, Dr. Donovan, the President of the Eastern Kentucky State Normal School, and we will ask him to say a few words to us.

MR. H. L. DONOVAN: Mr. President, Ladies and Gentlemen: My welcome to you is an outward expression of an inward joy. On behalf of the Board of Regents and the faculty of this institution, we greet you and welcome you to this campus. There are some things here that possibly are not as convenient as they would be if you were meeting in some of the fine hotels of the state. We hope that you will understand that we cannot have dormitories quite so fine and accommodations quite so good as those of the Brown Hotel or the Seelbach or the Phoenix or other fine hotels in the state. However, we are glad to say that what we have you are welcome to.

You may be troubled by not having screens on the new dormitory. We believe in screening our dormitories and had the old ones screened, but the Stevenson Budget Act passed last year makes it an offense for an institution to go in debt, and the President does not care to go to the penitentiary, so we delayed screening the dormitory until our appropriation will permit us to.

You possibly will be interested in something I may say with respect to the institution here. This is a state teachers' college, a standard college, giving a four-year course, granting the A. B. and B. S. degrees. It is a member of the American Association of Teachers' Colleges. It has as good a standing as any other teachers' college in America. There were assembled on this campus last year, 2886 students. We have a faculty of seventy-six members. Many of them hold the degree of Doctor of Philosophy, and all of them must have the Master's degree when we employ them.

You will be interested, too, in knowing that the state makes it possible for us to provide a splendid education here for young women and young men of the state at a very low cost. A student may complete his school year at a cost not exceeding $300.

We have a plant of about 200 acres with

fourteen buildings. We are still in need of further equipment. We are going before the Legislature from time to time and ask them to increase the educational opportunities of the young men and women of this state.

One thing especially we are interested in securing, and that is a health building. I believe that the members of this profession will help us to bring this about. We are anxious to have taught there to the teachers of the state the principles underlying good health, and I know the physicians of Kentucky are interested in seeing that we do that.

No other profession is possibly quite so closely related to our profession as the medical profession. Your ideals and the ideals of the teaching profession are very much of the same type. I do not know of any profession that we respect and admire more than the medical profession. You use the same methods which we use, you are interested in science, you use the laboratory method, you are seeking the truth, and you are finding the truth, and that is the thing that we admire, that is the thing that we are trying to do in teaching.

We welcome you to this campus because we are happy to have men and women of culture, of refinement, come here. We always profit by these contacts. We hope that your stay in Richmond will be a delightful one, and in any way that we can serve you we shall be happy to do so. (Applause)

PRESIDENT ESTILL: The response to the address of welcome will be given by J. D. Northcutt, of Covington.

SECRETARY McCORMACK: Dr. Northcutt is President of the Campbell-Kenton County Medical Society, the second largest in the state.

J. D. NORTHCUTT: The response to these beautiful words by your citizens comes not from me, but from the members of our society. As if by an echo, we feel welcome. There are a number of things that might go to make this meeting a memorable one. We are entertained on the grounds of a hospital unique in its purpose, which has already been mentioned, designed for the treatment of trachoma, under the management of our state society and our national government.

Next, we are visiting near the homeland of that pioneer surgeon of whom we have heard mention and of whom we have read all of our natural lives.

It is a wonderful sight to see a skillful surgeon perform an operation dexteriously, but it is a greater thing to be able to prevent the necessity of such an operation being performed.

Kentucky points with pride to many things that are historical. She justly lays claim to a number of things of distinction. She is awakening to her wonderful natural resources. To all of this we justly subscribe. But we feel the public hears too little of the progress we are making in the field of medicine.

There have been and are now being spent thousands of dollars in the research to fathom the mysteries of cancer. Many lives have been prolonged, great suffering has been reduced and cures have been effected, but none of this came as the result of the research work; it came from the information that filtered through, teaching the public the value of early and direct examinations. Periodic examinations of the apparently healthy have done great good in many other diseases. All of this is common knowledge to the medical profession, but it is not so common to the general public. Therefore, we feel the public should be invited to attend more of our scientific meetings, and especially that part of the meetings which deals with the branch of medicine which means so much to the public, that of preventive medicine.

State boards everywhere have realized the value of preventive medicine. It is worth while to remember that our own state board never ceases action along these lines. A touch of pride always comes to us when we visit other states and the subject of state boards is mentioned, because we know the respect that our own state board commands.

We are glad of the opportunity to visit your city. We appreciate your kind words of welcome. We hope to leave here, in a measure better doctors. We hope that our coming together will weaken what little discord there might be, will strengthen our determination to do the good within our reach, and will give aid and inspiration and prove loyalty to our own state society.

We have probably never been entertained in such a charming and unusual manner and we may never again be so entertained.

I hope that the Ladies' Auxiliary will get credit for doing more for our medical profession than they may have done in politics. (Applause)

PRESIDENT ESTILL: Before the installation of our new President, I am going to ask Mrs. Martin, the retiring President of the Woman's Auxiliary, and Mrs. Reddick, the incoming President, to come to the platform.

One of the pleasant duties of the retiring president is that of formally presenting to you our new president. When that man happens to be John Blackburn, whom we all know and respect and love, the pleasure is very great indeed. I will ask Dr. Abell and Dr. Sandlin to escort Dr. Blackburn to the platform. (Applause)

Dr. John H. Blackburn, of Bowling Green, took the chair.

President Blackburn gave his address: "What is Orthodox in the Healing Art?"

SECRETARY McCORMACK: I am sure I voice the sentiment of everybody in this audience, as I look into their faces, in expressing our gratitude to you, Mr. President, for this masterly address. I desire to ask the unanimous consent of the House of Delegates for copies of the address to be sent to the press, that the intelligent newspapers of the state may help give us the message that our President has delivered to us, that the people of the state may be better informed as to the character of the profession that we have the very distinguished honor of representing.

All who are in favor of that suggestion will make it known by rising. The members of the Auxiliary may vote in this matter. It is unanimous, Mr. President.

PRESIDENT BLACKBURN: We will now have the report of the Chairman of the Committee on Arrangements, Dr. Robert Sory, of Richmond.

Dr Sory made announcements with respect to the entertainment features.

SECRETARY McCORMACK: There are more women present at this session than there were physicians present at any session of the Kentucky Medical Society during the first fifty years of its existence. In this audience, just exactly half of the number in attendance at this session are members of the Auxiliary. In that connection, I should like to say to the ladies who are present from unorganized counties, that you are natural members of the Auxiliary if you are wives of physicians. If you will go to the desk you can record your membership by paying the dues of the state at large, pending the organization of your county, which we hope will occur during this year. It is hoped that every woman present will become a member of the Auxiliary and the nucleus of the organization in your county.

The following papers were presented:

"Modern Conception of Contagious Diseases," by J. H. Pritchett of Louisville, and "The Present Status of Whooping Cought," by J. L. Jones of Louisville, State Epidemiologist; discussed by Thomas Marks of Lexington, Virgil Simpson of Louisville, J. W. Bruce of Louisville, J. S. Lutz of Louisville, Sam Marks of Lexington, G. G. Thornton of Lebanon, V. G. Kinnaird of Lancaster, J. G. Bosley of Richmond, Dr. Lillian H. South of Louisville; closing discussion by Drs. Pritchett and Jones.

"Fixing the Responsibility for Corrective Work with School Children," by F. P. Allen of Lexington; discussed by A. T. McCormack of Louisville.

The Oration in Surgery, in the absence of Raymond H. Evans of Louisville, was read by title, the subject being "The Diagnosis and Management of Abdominal Emergencies."

The meeting adjourned at twelve o'clock.

Second Scientific Session.

The Second Scientific Session was called to order at two p. m., Tuesday, September 11, by President Blackburn. The following papers were presented:

"Present-Day Knowledge of Disease of the Rectum and Colon, and Their Relation to Remote Disorders," by William E. Applehaus of Louisville; discussed by John R. Wathen of Louisville, G. A. Hendon of Louisville, Granville Hanes of Louisville, and J. G. Sherrill of Louisville.

"Hypertension," by C. C. Turner of Glasgow; discussed by P. C. Sanders of Danville, Virgil Simpson of Louisville, J. W. Scott of Lexington, R. R. Elmore of Louisville, E. F. Horine of Louisville, C. W. Dowden of Louisville.

"Nasal Accessory Sinus Infection in Relation to Diseases of the Eye, Ear, Nose, and Throat," by J. A. Stucky of Lexington.

The meeting adjourned at four o'clock.

SURGICAL SECTION.

The Surgical Section held its meeting in University Building, Tuesday, September 11, 1928.

The meeting was called to order at eight-fifteen p. m. by President Blackburn, who introduced the Chairman, Dr. John Wathen, of Louisville.

The following papers were presented:

"Sub-total Thyroidectomy for Exophthalmic Goiter," by Fred Rankin, Mayo Clinic, Rochester, Minnesota; discussed by J. G. Sherrill of Louisville, Irvin Abell of Louisville, Wallace Frank of Louisville, W. W. Anderson of Newport, Frank P. Strickler of Louisville, W. O. Johnson of Louisville, John Wathen of Louisville; closing by Dr. Rankin.

"Treatment for Fractures," by George A. Hendon of Louisville; discussed by Frank P. Strickler of Louisville, C. C. Garr of Lexington, C. C. Howard of Glasgow, E. M. Howard of Harlan, Barnett Owen of Louisville; closing discussion by G. A. Hendon.

"The Treatment of Post-Operative Hernia," by J. Gant Gaither of Hopkinsville.

The following officers were elected:

Chairman—Charles A. Vance, Lexington.

Secretary—C. C. Howard, Glasgow.

The meeting adjourned at eleven-ten o'clock.

THIRD SCIENTIFIC SESSION.

The Third Scientific Session convened at nine-fifteen a. m., Wednesday, September 12, President Blackburn presiding. The papers of W. A. Weldon of Glasgow, "The Eye in Relation to Headache," and William M. Brown of Lexington, "Treatment of Tuberculosis of the Spine by the Spinal Fusion Method," in the absence of the authors were read by title.

Mr. C. P. Lorenz, Manager of the Southern Medical Association, was introduced and briefly responded. Dr. Gant of the American Medical Association was presented and made a few remarks regarding the publications of the A. M. A.

The following papers were read and discussed:

"What the General Practitioner Should Know about Radiation Therapy," by W. F. Boggess of Louisville; discussed by D. Y. Keith of Louisville, Irvin Abell of Louisville; discussion closed by Dr. Boggess.

"An Analysis of Fractures at the Lynch, Kentucky Mines During the Past Five Years," by M. H. Todd of Lynch, and "Comparisons of Estimated and Actual Disability in Certain Groups of Fractures—Follow-up of Cases—Deductions," by Ellis Duncan of Louisville. These two papers were discussed by: E. M. Howard of Harlan, Orville Miller of Louisville, George A. Hendon of Louisville, I. A. Arnold of Louisville, C. G. Forsee of Louisville, C. C. Garr of Lexington, Frank T. Fort of Louisville, W. Barnett Owen of Louisville; closed by Drs. Todd and Duncan.

As a special order of business at twelve o'clock, W. S. Wyatt of Lexington gave the Oration in Medicine, "Gastric and Duodenal Ulcer."

The meeting adjourned at twelve forty-six o'clock.

FOURTH SCIENTIFIC SESSION.

The Fourth Scientific Session convened at one-forty p. m., Wednesday, September 12, President Blackburn presiding.

The following papers were presented and discussed:

"Version: Indications—Technique," by Henry M. Rubel of Louisville, and "Management of Normal Labor," by A. F. Finley of Madisonville. These two papers were discussed by L. C. Redmon of Lexington, G. G. Thornton of Lebanon, J. S. Lutz of Louisville; closed by Drs. Rubel and Finley.

"Pelvic Inflammation," by E. L. Henderson of Louisville.

"Digitalis Therapy," by John W. Scott of Lexington, discussed by Virgil Simpson of Louisville, W. W. Anderson of Newport, R. Hayes Davis of Louisville, Frank Stites of Louisville, John Harvey of Lexington; closed by Dr. Scott.

"Chronic Appendicitis," by Guy P. Grigsby of Louisville.

The papers of Drs. Henderson and Grigsby were discussed by Irvin Abell of Louisville, C. W. Hibbitt of Louisville, Hayes Davis of Louisville, Wallace Frank of Louisville, George A. Hendon of Louisville, J. Duffy Hancock of Louisville, Louis Frank of Louisville, Frank T. Fort of Louisville, J. B. Cox of Louisville; closed by Drs. Henderson and Grigsby.

"Tularemia," by C. N. Kavanaugh of Lexington; discussed by E. B. Bradley of Lexington, J. G. Bosley of Richmond, R. H. Cowley of Berea, R. W. Wood of Cynthiana, Virgil Simpson of Louisville, B. K. Menefee of Covington, Paul Turner of Louisville; closed by Dr. Kavanaugh.

"Symptoms of Sinus Infection Simulating Pulmonary Tuberculosis," by H. Kennon Dunham of Cincinnati; discussed by Paul Turner of Louisville, John W. Scott of Lexington, R. W. Bledsoe of Covington, James A. Stucky of Lexington; closed by Dr. Dunham.

The meeting adjourned at 6:15 o'clock.

GENERAL SESSION

The General Session, held at the First Christian Church, was called to order by President Blackburn, Wednesday evening, September 12, 1928, at 8 o'clock.

PRESIDENT BLACKBURN: Ladies and Gentlemen: This is the Seventy-eighth Annual Meeting of the Kentucky State Medical Association. I can say from personal feeling that since six o'clock this evening it has been a delightful meeting. We folks have had a good time here with you. Some of us have worked a little; all of us have played a little, and we have had a good time.

We feel that every doctor who has come here has unquestionably been benefited by this meeting, and to show you folks who are not in the medical profession that our hearts are in the right place, we doctors have brought our various and sundry auxiliaries along with us. We have got our commander-in-chief in each case, if we happen to have one, and our wives have come with us to help us have a good time. With all the pleasures incident to this particular meeting, to you doctors who know the speaker I don't have to say a word. To you folks who do not, I will give you just a little time, and I think that my prediction that one of your most delightful experiences of the whole meeting will be in hearing our distinguished speaker will be proven true by the fact that Dr. Stewart R. Roberts of Atlanta, Georgia, comes to us, a man who is known throughout the Southland and throughout this whole country, a man who has established for himself a reputation as a doctor, not a specialist, but a doctor, one who tries to find out what is the matter with folks, a man who before the war, as some of us know, was establishing for himself a reputation, and during the World War he carried on in the service of Uncle Sam just as he had done in private practice, and since that time, back in Atlanta he is still considered one of the leading internists in Southern medicine.

It is with a great deal of pleasure that I introduce to you Dr. Stewart R. Roberts of Atlanta.

Dr. Roberts then gave his address, which will be published later.

PRESIDENT BLACKBURN: Dr. Roberts, on behalf of the Kentucky State Medical Association, I want to say that I feel that this applause expresses beyond a question the feeling that we as doctors, as doctors' wives, as doctors' friends have for this masterly address. We feel unquestionably that we have had a larger, broader diagnosis of each of us. Someone has said recently that these plagiarists are the folks who say what we wanted to say but say it better. I dare say that many of us feel tonight that Dr. Roberts has plagiarized our feelings somewhat; he has expressed them in a manner that shows the wide experience, the real soul of a real doctor.

On behalf of the Kentucky State Medical Association I want to announce to Dr. Stewart Roberts of Atlanta, that he is an honorary life member of the Kentucky State Medical Association, one of ten living members. (Applause)

The meeting adjourned at 9:15 o'clock.

Fifth Scientific Session.

The Fifth Scientific Session was called to order at 9:55 a. m., Thursday, September 13, by President Blackburn.

The following papers were read:

"Peptic Ulcers: Evaluation of Methods of Diagnosis and Treatment," by A. M. McKeithen of Louisville; discussed by Wallace Frank of Louisville, S. C. Smith of Ashland, Frank T. Fort of Louisville; closed by Dr. McKeithen.

"The Value of Eye Observation in Fractures of the Skull and in Severe Head Injuries," by Milus L. Gunn of Harlan; discussed by W. E. Gardner of Louisville, Gaylord C. Hall of Louisville, J. A. Stucky of Louisville; closed by Dr. Gunn.

"Infant Diet and Hygiene During the First Year," by A. A. Shapero of Louisville; discussed by Julian Estill of Lexington, J. H. Pritchett of Louisville; closed by Dr. Shapero.

"Practical Surgical Consideration of Hernia," by J. Duffy Hancock of Louisville; discussed by Frank T. Fort of Louisville.

"Urological Problems in General Practice," by Irwin H. Cutler of Louisville; discussed by E. R. Palmer of Louisville, L. T. Minnish of Frankfort, Jethra Hancock of Louisville; discussion closed by Dr. Cutler.

It was voted on motion of Dr. South, to hear the papers of the essayist on the afternoon program present at the session.

Dr. George Purdy of New Liberty, read a paper on "A Review and Suggestions on the Prevention and Treatment of Tuberculosis;" discussed by K. S. McBee of Owenton and Paul Turner of Louisville.

The meeting adjourned at twelve forty-five o'clock.

Sixth Scientific Session.

The Sixth Scientific Session was called to order at one-thirty p. m., Thursday, September 13, by President Blackburn.

The following papers were presented:

"Nasal Sinus Symptoms, Actual and Contributary Causes and Complications," by R. W. Bledsoe of Covington; discussed by W. B. McClure of Lexington, A. T. McCormack of Louisville, A. L. Bass of Louisville; discussion closed by Dr. Bledsoe.

"Treatment of Typhoid Fever," by T. T. Gibson of Middlesboro; discussed by J. H. Hendren of Straight Creek, Austin Bell of Hopkinsville, John B. Floyd of Richmond, Lillian South of Louisville, George Corum of Corbin, R. H. Cowley of Berea, John H. Blackburn of Bowling Green; discussion closed by Dr. Gibson.

The paper of H. W. Nyce of Jeff, on "Contract Practice," in the absence of Dr. Nyce, was read by title.

The meeting adjourned at three o'clock.

A. T. McCORMACK, Secretary.

OFFICIAL MINUTES OF THE HOUSE OF DELEGATES OF THE KENTUCKY STATE MEDICAL ASSOCIATION, SEPTEMBER 10, 11, 12, 13, 1928.

FIRST SESSION—SEPTEMBER 10.

The first session of the House of Delegates at the Seventy-eighth Annual Meeting of the Kentucky State Medical Association, held in the University Building of the Eastern Kentucky State Normal School, Richmond, Kentucky, was called to order at two o'clock by the President, Dr. R. Julian Estill, of Lexington.

PRESIDENT ESTILL: The meeting will come to order. The Secretary will call the roll.

The Secretary, Dr. A. T. McCormack, called the roll.

SECRETARY McCORMACK: There is a quorum present, Mr. President.

PRESIDENT ESTILL: Next will be the minutes of the 1927 meeting.

WILLIAM E. APPLEHAUS (Louisville): I move that the reading of the minutes be dispensed with, and that the minutes as published be adopted.

The motion was seconded by J. N. Pritchett, Louisville, and carried.

PRESIDENT ESTILL: Next is the report on the Program.

SECRETARY McCORMACK: As a member of the Committee on Scientific Work, I wish to say that the report of the Committee has been printed in due form and is submitted as the report of the Committee on Scientific Work. I move that it be adopted as the program of the session.

The motion was seconded and carried.

PRESIDENT ESTILL: Report of the Council.

R. S. McCHORD, Lebanon: The report of the Council has been published in THE JOURNAL. It is rather long, and I should like to pass the reading of it at this time.

SECRETARY McCORMACK: There are a few paragraphs in the report that I believe the members of the House would like to have their memories refreshed upon, and I believe it might be a good idea to read them.

PRESIDENT ESTILL: Before Dr. McCormack does that, I want to say that I have read this report through very carefully, and it is a very interesting report. It would be well if each one of us would read that report in its entirety. It is a very splendid summary of the work the Society has done during the past year.

SECRETARY McCORMACK: There are two or three problems that the Council has emphasized this year, with which I think we should be thoroughly familiar in our deliberations at this time and which I consider of enormous importance to the future welfare of Kentucky.

In a considerable number of the counties of the state, we have one physician to 3,000 or 4,000 population; in several counties, we have one physician to more than 5,000 population; in two or three counties, we have one physician to more than 10,000 population, which is manifestly an improper distribution. We have too many physicians in Louisville, which is readily recognized, and the same thing applies to Paducah, Ashland, Covington, and Newport.

Secretary McCormack read various excerpts from the report of the Council.

PRESIDENT ESTILL: Next is the Treasurer's report.

W. B. McCLURE, Lexington: Mr. President, the unusually extensive and full report of the auditor is a matter of record. There is just one feature of it to which I should like to refer. You who have read the report have been impressed, no doubt, with the unusual list of expenditures. It is much greater than heretofore. The explanation of that I will give by illustration.

The United States government has a policy that when a fire breaks out in any of the territory controlled by the government, there shall be no limit to the expenditure until that fire is put out. We had a fire started down at Frankfort last winter, said to have been of incendiary origin, and it developed to alarming proportions. It looked as if our property would be completely destroyed. Fortunately, we had many fire-fighters from every section of the state who came to our aid, led by that splendid fire chief who has had wonderful experience during past years at fires occurring at least every four years, and we succeeded in extinguishing the blaze. In doing so, we had to spend money. I believe the result justified the expense. (Applause)

PRESIDENT ESTILL: I am sure everyone will agree with Dr. McClure in both statements that he made, that we had a wonderful fire chief, and that we were perfectly justified in spending whatever was necessary to extinguish the fire.

Report of the Secretary.

SECRETARY McCORMACK: Mr. President, I have no formal report to submit. I wish to say very briefly that the membership in the county societies remains just about the same. There are 250 men in active practice in the state who are not actively connected with the county societies. They are members from time to time. They think they are members all the time, but they fail to keep up their membership. They frequently attend the sessions, but for some reason their dues are not collected and they are not officially connected with this Association. That is a condition that should be remedied.

I rather like the simile that Dr. McClure so well used to illustrate our condition. We have been perhaps a little guilty in the past of practicing the same sort of medicine that our fathers practiced generations ago—purely remedial; we have not undertaken enough of the preventive work. By the action of the Council in authorizing us to extend our organization work so as to be sure we are including every active physician in the state, we are, in the first place, building up a reserve in public confidence, and by holding public meetings, by being in contact with leaders in the other allied professions, by having our representatives appear on the programs of other organizations, we will be able to develop the preventive measures that are necessary to insure the continued effective work of the profession of the state.

Other than that, I have nothing to say, but I shall reserve the privilege of submitting, from time to time, a few remarks on various subjects as they arise and as reports of committees are presented.

PRESIDENT ESTILL: Next are reports of the Councilors by Districts.

I have a cable message that I know you will all be interested in receiving:

Dr. Arthur T. McCormack,
Secretary, Kentucky State Medical Society,
Richmond, Ky.

> My heart, thoughts and best wishes are with you today. God bless you all.
>
> (Signed) J. G. South.

(Applause)

SECRETARY McCORMACK: I move that the Secretary be authorized to cable a reply to Dr. South, expressing our love and good wishes.

The motion was seconded and unanimously carried.

PRESIDENT ESTILL: Dr. Sory will give us the report of the Committee on Arrangements.

Dr. Sory announced the arrangements for a fish fry, a golf tournament, and the ladies' entertainments.

SECRETARY McCORMACK: Let me ask you to tell the members from our counties about the Trachoma Hospital, which is near the college grounds. This is one of the most interesting institutions in the United States. It was given to the Kentucky State Medical Association by the granddaughter of Ephraim McDowell as a memorial to him. It was loaned by the State Medical Association to the State Board of Health for a trachoma hospital which is being officered and conducted by the United States Public Health Service. Dr. Sory is the officer in charge.

The institution is in an historic building. The furniture and the remarkable cabinet of curios and historical mementoes are worth seeing. Physicians from all over the United States travel through Richmond in order to see the portraits in that building; the original portraits of Dr. McDowell and his wife and his relatives are of great historic interest and of enormous value, being, of course, unique of their kind.

The medals of Governor Isaac Shelby and other interesting historic mementoes of great value are on exhibition, and I am sure every member will be interested in seeing them.

I want to call the attention of the ladies to the curtains in Dr. Sory's office. They are lace curtains that were brought from Paris many years before the Civil War. When we took over the building, they looked like brown cobwebs. Under the skillful manipulation of the nurses, they have been entirely restored. These beautiful works of art are worthy of your attention and admiration.

From the scientific viewpoint, it is of very great interest that the Trachoma Hospital, recognizing the epoch-making work of Dr. Stucky and Dr. McMullen, carried on and made effective largely through the efforts of our Treasurer, Dr. McClure, who was possibly more influential than anybody else in finally securing the location of the hospital after our failure to get it in Fayette County, has been a remarkably successful institution. Practically from its beginning it has had a waiting list. Hundreds of our fellow citizens have been restored to usefulness and to economic sufficiency by its ministrations.

It is interesting that it is one of the few institutions in the world where cases of trachoma are being received and diagnosed and operated and discharged cured, right along, day by day. At one time in Kentucky we had, you will remember, between 50,000 and 60,000 cases of this disease. We now have less than 3,000 cases. We propose to get rid of all of them within the next few years. That is one of the most monumental pieces of work that has been done.

It is of interest that this disease has increased in every other geographic section of the world where it ever existed. It is the major disease in Egypt, in Brazil, in China, in Armenia, and in many other sections where it has been studied and where science has been directed upon it, but in Kentucky it has been almost eradicated, in many of our counties entirely eradicated. It will be harder to get the few remaining cases than it was to get cases in the beginning when there were so many, but we propose to continue the campaign until the disease is eradicated.

I think we ought always to think gratefully and thankfully of Dr. Stucky and Dr. McMullen, who did their work so effectively, yet so quietly that the world failed to get the picture. This is the only major disease that has been almost eliminated, to the founders of which there have not been erected monuments or offered honors from governments. These men have not received any of those, but their work was just as effective as if they had.

Dr. Sory is continuing this work most effectively, as is Dr. Kobert of the State Board of Health in the clinical end.

PRESIDENT ESTILL: We will have a report of the Committee on THE JOURNAL.

J. A. STUCKY, Lexington: I believe I am to substitute for Dr. Barkley, who was to have made the report.

I think I am not alone in the desire that we get our JOURNAL just a little bit more up to date and have it printed in a larger business section. It seems to me that the Kentucky State Medical Association ought not to have to send all of its material a hundred or more miles to be printed. I have talked with the officers about it, and it is not only hard on them, but it seems to me it is not good business.

A good many of us have talked the matter over, and we feel it would be a good plan to bring THE JOURNAL a little more up to date in appearance. The contents of THE JOURNAL are splendid, but I think the delay which sometimes occurs in getting it out is due to the fact that it is so far from headquarters.

I do no know what Dr. Barkley had in mind to report, I have not talked wih him about it at all, but personally I should like to see the change I have mentioned made, and I should like to see THE JOURNAL printed where the Secretary and the editors can put their fingers on it.

I move that the printing of THE JOURNAL be submitted to bids, not so much for the purpose of getting the lowest bid as to get the best service. I suppose the Council will decide the matter. I move that bids be obtained in order to ascertain what improvement can be made in THE JOURNAL.

R. C. McCHORD, Lebanon: I think we had better defer this matter until we have a report from Dr. Barkley. It seems to me Dr. Stucky's individual report offers a resolution that should not be acted upon now.

PRESIDENT ESTILL: Dr. Stucky is Dr. Barkley's official representative.

Dr. Stucky's motion was seconded by several delegates, put to vote, and carried.

PRESIDENT ESTILL: Dr. Pritchett has the report of Dr. J. B. Lukins as Chairman of the Medico-Legal Committee.

REPORT OF MEDICO-LEGAL COMMITTEE.

J. H. PRITCHETT, Louisville: Dr. Lukins, who is ill, asked that I make this report of the Medico-Legal Committee:

"Number of suits on hand, still pending	15
Number of suits threatened	4
Number of cases dismissed	16
Number of cases judgment obtained by plaintiff	None this year
Number of cases compromised	None this year
Verdicts given the doctor	1

"Seven suits have been filed since January, 1928, leaving eight cases still pending that are listed among the old ones."

PRESIDENT ESTILL: We will now have the report of the Editor of THE JOURNAL.

SECRETARY McCORMACK: I have no further report to make than filing the volume for the year. I think it speaks for itself. We have had rather more complaints than usual about typographical errors and rather more delay than usual. I think it is very well for the Council to seriously consider the matter of what shall be done in the future with regard to THE JOURNAL.

PRESIDENT ESTILL: General discussion of THE JOURNAL is in order.

VIRGIL E. SIMPSON, Louisville: I think THE JOURNAL could be very materially helped from the standpoint of its appearance if its type could be made to conform to that which is customary in other well edited, well printed journals.

As an illustration of just what I have in mind, I should like to say to the House of Delegates that if a paper is presented for publication, containing tables, those tables should appear in smaller type than the reading matter of the paper as a whole. In the first place, it will make them stand out; in the second place, it will conserve space; it will emphasize the fact that they are tables, and it is the common custom in well edited journals for this sort of procedure to obtain. That is not the custom in our JOURNAL. So far is it from our custom that if you present a paper to the publisher and want reprints and want your tables in smaller type so as to present a better appearance, you have to pay for that exception. That should not be the case. The printers have small type, they put other material in small type, and there is no reason in the world why they should not put tables and matter of that sort in small type.

That is just one thing I have in mind with reference to the improvement of the appearance of THE JOURNAL.

I also want to say, in connection with the number of pages that we have devoted to scientific matter, that I am persuaded that the greatest help which this JOURNAL is to the profession as a whole comes through its scientific material. That should be made the first consideration. I think we devote too much space each year, particularly following the legislative session, to telling what is to be done and what has been done in Frankfort. That could be very materially condensed. Most of the profession is already acquainted with it. We certainly get enough of it in the House of Delegates. There is no necessity that I can see for devoting as many pages a year as are devoted to the recapitulation of the events, however interesting they may be to all of us, that take place at Frankfort.

I think if a publication committee were authorized to be appointed by the President or elected by the House, to cooperate with the Editor or Secretary, perhaps these things could be brought out in a satisfactory fashion.

JOHN W. SCOTT, Lexington: In my opinion, and I think in the opinion of a good many of the delegates, the money would be well expended to improve THE JOURNAL, even if it is more expensive to publish it in a manner in conformity with other scientific journals. The putting of THE JOURNAL in that sort of shape should be the paramount consideration, and not the question of the expense of printing it. I think THE JOURNAL should be in the type and of the general appearance of other scientific journals, and not of the type and of the general appearance that it is now, even though it is printed for less money.

PRESIDENT ESTILL: Report of the Committee on Legislation and Public Instruction.

IRVIN ABELL, Louisville: The report of the Council has fully covered the bills that were offered for enactment at the 1928 session of the legislature in which the Kentucky State Medical Association had a special interest. With the Council, your Committee believes that the establishment of a separate board of licensure for chiropractors is fundamentally wrong from both the standpoints of administrative economy and efficiency and the maintenance of high professional standards. If every cult or group engaged in the practice of the healing art is to have a separate board of licensure, the standard of efficiency which must be exhibited by every applicant for practice will of necessity be lowered, while a multiplicity of such boards offers opportunity both for loose organization and poor administration or maladministration.

The Ripper Bill against the State Board of Health met merited failure. The State Board of Health is part and parcel of the state medical organizations, than which there are none knowing so well the value of the public health and the measures necessary for its safeguarding. The brilliant record made by the Kentucky State Board of Health in its fifty years of service to the people of the commonwealth is a matter of pride to every medical organization in Kentucky. Such service has been a service characterized by devotion to duty and faithful discharge of a self-imposed moral obligation, namely, the protection of those who from lack of technical knowledge are unable to protect themselves, without thought of remuneration other than the spiritual exaltation that comes from the performance of good deeds. It is a matter of comfort and satisfaction to know that the people of the state are not unmindful of this, and that the confidence reposed by them in the medical organizations of the state and the Board of Health selected by the latter was and is such to array them almost solidly against the bill designed to make of the State Board a political dependence.

With the stimulation which such confidence inspires, this particular organization will carry on, living up to its heritage and tradition that the protection of the public health is with it a sacred duty.

One of the means of fulfilling this trust is the dissemination of medical knowledge by means of public instruction. This is being accomplished through the various bureaus of the State Board and through the avenues of the county societies and their auxiliary affiliations. It is important and essential that the dissemination of public instruction be kept within legitimate channels, since only thereby can its authenticity and accuracy be insured. The only ones competent to give such information are those whose education, training and experience have placed them in possession of it, namely, the medical profession. We should jealously guard our responsibility to the end that neither we nor the public we serve suffer from misrepresentation.

This report is signed by the Committee on

Legislation and Public Instruction:

J. D. Whitcaker, Cannel City.
Claude Youtsey, Newport
J. W. Stovall, Grayson
O. V. Brown, Island
Irvin Abell, Louisville, Chairman.

V. E. SIMPSON: I move the report be received and filed.

The motion was seconded and carried.

PRESIDENT ESTILL: Report of the Committee on Medical Education.

W. A. JENKINS, Louisville: The committee on Medical Education of the Kentucky State Medical Association presents the following report for the consideration and action of the Society:

We should realize that medical education should be directed along two general lines: (1) the education of good physicians to serve our people; (2) the education of the people themselves.

First let us consider the education of the public as regards medical matters. This is a very important work and should be participated in earnestly by every doctor in the medical profession. The means at our command are numerous. The bulk of the work, the most telling and effective part of the work, must be done by the individual doctor in his individual community, man to man, if you please. We should also employ freely popular talks, addresses and public health work in general. We should elect full-time county health officers wherever possible. The work of an efficient county health officer is of boundless importance to the community as a whole. Every county in our state should have a county health officer, either full or part-time, according to the needs of the case. The Kentucky State Medical Association should have this as its goal.

Second, concerning the education of the doctors, in certain quarters we doctors have been flatly denied the right or the privilege of a directing hand in the education of medical students. Our capacity to do this work intelligently has even been questioned. However, all of this is now being changed rapidly. The crying need of the times is for good general practitioners. The medical profession is trending too much toward specialization. Some adequate constructive plan must be worked out whereby we can supply our rural communities with good general practitioners. Who shall take the lead in this work? The organized profession, of course, the doctors themselves. Good roads, the automobile, county health centers, county hospitals, county health officers, public health work, the State Board of Health, etc., will all do a great deal. The work should be continued. The Kentucky State Medical Association should make an intensive study of this matter by the appointment of a special permanent committee, and said committee should act with similar bodies all over the country.

Unfortunately, in affairs medical there has been a tendency by the controlling boards of our medical schools to turn the medical schools over to professional educators, full-time pre-medical professors and deans. Few of them, if any, are practical doctors. The dictum has just recently gone forth from the leading authorities of the American Medical Association that clinicians who take care of the sick should have an equal voice with pre-medical and laboratory teachers in the arrangement of the curriculum, the determination of content of matters taught, and in the actual work of teaching itself. The outstanding clinical men of the community, the leaders of the profession, the men who are doing the actual work of caring for the sick and afflicted should be, and are, best qualified to determine the methods and to conduct the training of medical students.

Periodic health examinations. As a protection to the public the value of the above measure has never been realized or thoroughly understood by the people generally. Every doctor who practices any branch of medicine should make it his business to point out the very great value of this procedure. He should use every effort to sell this idea to his clientele.

Summer Post Graduate Course. The Kentucky State Medical Association should establish a summer post graduate course as a permanent feature. The session should last two weeks, and it should be held in Louisville at a definite, fixed time. It should be conducted by the State Board of Health and the Medical School of the University of Louisville jointly. Both of these institutions in a certain sense are the children of the doctors of Kentucky. The City Hospital and the other hospitals of Louisville would furnish an abundance of clinical material of every type. It is very desirable for every doctor who practices any branch of medicine to get away from home at least once every year or two and see some new work. In fact, this is the only way for a doctor who practices in an isolated locality to keep up on all of the new points, to keep in fact fully abreast of the times.

May I say an unofficial word or two? I think we are not coming up to our responsibilities. I think the doctors are too prone, at a meeting like this, to get together and talk and to get up a nice set of resolutions that are adopted, and that is the end of it, nothing is ever done. We are never going to get anywhere at all doing business that way. No man conducts business along lines like that.

We ought to have a permanent legislative committee. They soon learned, in the organization of the American Medical Association, that if you elect a new set of men every year you never get anywhere. It takes one year for a man to get used to what is going on. We ought to have three to five men especially selected for their fitness for that kind of work, to make a study of this thing and determine what we are going to do. The legislative phase of this whole proposition rests with the states anyway. The men in the American Medical Association really have no legal authority; that must arise from the states.

In our schools we find men's names connected with important committees, picking our teachers, determining the number of hours to be employed in training teachers, and these men are not even doctors. This organization should let it be known that it has some power, that it is more or less related to the legislative phase of our body politic, that it can take over some of these things. We should let it be known to the very excellent gentlemen who preside over the medical schools that we should like to see certain things fostered. The doctors are doing the work out over the country, and they should be interested in this and should be considered in such matters. If such things were done, we might get somewhere along the line of medical education.

With reference to the post graduate course, I think this permanent post graduate course could be made the most remarkable and most effective thing for this society, if it were properly worked, that we ever had. If the men will let us know what they want, we can give it to them. We don't have to give them an eloquent polysyllabic dissertation.

One man said, "I should like to have some fellow get up and tell me the real lowdown on bood pressure."

Another said ,"Yes, and then include the treatment, not what Professor So-and-so in Germany says, but what the best doctors in the world have finally agreed is the best plan to pursue and all that can be done in that condition."

All such material could be supplied very nicely by pre-arranging a course of this kind

PRESIDENT ESTILL: I think Dr. Jenkins is on the right road. I have felt for several years that it was unfair to the different states, in a way, to have the whole subject of medical education left to four or five men who are theoretically educators and not doctors, and it seems to me that some such plan as this, whereby we could, at Louisville, accommodate probably twice as many students as this committee would allow us to accommodate, and educate some men who practice general medicine to give these courses. All this super-scientific work which is being given at the present time does not at all make them better doctors; it makes them feel that they are too big to leave Louisville and go to the country; it makes them feel when they get through with a course of this kind that they can go back home and be worth something to their own people.

The objection might come at once that we would lose our reciprocity with other states. Personally, that is what we want. We don't want to educate a lot of doctors to leave us; we want to educate men who will practice medicine in Kentucky.

This is not a local problem; it is a problem all over the country. I believe if we had the courage to be a little bolshevistic and buck against this enforced regime, a good many other states would be very glad to come into some general scheme by which we could make doctors out of our men, and not specialists. I believe Dr. Jenkins is absolutely right.

I am aware of the fact that as Chairman I am overstepping the bounds of my authority, but I had this on my heart and I wanted to say it.

GEORGE A. HENDON, Louisville: I have been handed this resolution and asked to read it, and I do so with my unstinted personal endorsement:

"That the Kentucky State Medical Association has been considering the problem of medical education during the past several years and views with apprehension the development of a system which is subordinating training in the practice of medicine to the purely scientific subjects of the premedical courses; that we urge the State Board of Health and the trustees and faculty of the University of Louisville to study this problem and that we urge that the Executive Committee of the Medical Department of the University of Louisville shall consist of physicians who have had at least five years experience." (The resolution as presented to me read "general practice." I took the liberty of changing that word to "private practice," for the reason that men could practice within the walls of institutions and consider that as part of general practice, but I think what the resolution aims at is to get men who have had actual contact with what we might term the domestic standards of practice, the meeting of problems as they occur in homes. I believe that is the real object of this resolution). "In private practice of medicine, and that the dean of the school shall have had a similar experience."

I offer that as a resolution before the House of Delegates.

The motion was seconded by Dr. Wathen.

JOHN W. SCOTT, Lexington: I don't know a thing about medical education and its problem in Louisville, I don't know a thing about what is going on in Louisville, but I think for this body to try to dictate how a Board of Trustees and an Executive Committee of an institution shall be composed is going beyond our powers. For my part, if I voted pro or con on this, I should vote on something I know very little about. I am inclined to think a good many of the delegates are in the same position. I am opposed to the resolution because I don't know enough about it to vote on it.

W.B. ATKINSON, Campbellsville: That is a thing that has been discussed for some time, and the whole burden of the thing seems to be that the young men won't go to the country. I believe I can prove conclusively to my own mind and probably to your mind that it is not the young men's fault. It is the financial consideration in town. You can take the country districts and where the country stores were prosperous ten to fifteen years ago, they are not making a living. There are not one-half of the country stores in Taylor County at the present time that there were ten years ago, and there is not a prosperous country store in Taylor County within ten miles of town.

These people have been belaboring the fact that all young doctors want to go either to the county seats or to the city. All of the stores are going there. The blacksmith shops are going there, not because they want to, but because they have to go there to make a living.

I am going to prove this to you further. It was reported that in 1907 Harlan County had four physicians. Harlan County became a place where the doctor could make money. How many have they got there now? It probably is true that medical education should be changed, but it is also true that you are not going to get back to the old crossroads doctor by changing medical education. He has to make a living in some way. A young man can't go to the crossroads within ten miles of a county seat where there are three or four doctors and keep the wolf from the door. He has to kill the wolf and eat it or use the skin for clothing.

I don't know anything about the educator's side of this, but I am a young man, I live in the country, and I didn't take a short term medical course. I got my bachelor's degree first, and I have been extremely fortunate in my friendships with the doctors in my county and over the state, for which I am thankful. But when we blame all of this on the education of the present-day doctor, it just doesn't work, that's all. (Applause)

J. W. KINCAID, Ashland: I would be very much in favor of the principles enunciated in the resolution which has been presented, but I don't believe it will get us anywhere. The qualifications for the practice of medicine rest with the legislature and they are incorporated in the medical practice act. If you want to change them to suit the changing conditions, you will have to change the act. The University of Louisville Medical School I suppose exists as a commercial institution, in a way. It brings business to Louisville; it advertises Louisville; it bring men from out of the state and from many states in the United States, and naturally they do not want to have their graduates refused recognition in states that require this ultra-modern standard for the practice of medicine. To keep in the profession, evidently they are doing the same sort of thing.

One of the arguments that was used for the consolidation of medical schools years ago was that a group of doctors would get together and establish a commercial school in order that the graduates thereof when they would get out in the country or get in practice for themselves would send the difficult cases to their professors. I suppose that was all right; the professors were competent to take care of them, the young men were not. I don't see any reason why that should not obtain. It obtains even today. We are asked to send our patients to the various clinics and large hospitals over the country. Where is the difference?

There should be clinical teaching. There is clinical teaching, but it should be by men who are clinicians.

Some five or six years ago at Paducah, I drew up a set of resolutions in regard to this educational system, but the secretary thought they were too drastic and they would disrupt the profession and the Society and everything of the sort, that we were going to lower the standard of education. I did not so consider it. My idea was to increase the standard or the practicability of the course of education that was offered to young men.

In passing these resolutions, we may give notice to the powers that be what our feeling is in the matter, but I don't think they care a hoot for it.

W. E. APPLEHAUS, Louisville: I think the student of today wants a change. I went to school and graduated right at the transition period when we had our lectures, our bedside clinics and our teaching by the clinical men. I have been associated with the

University of Louisville since then, and just gradually the time of those men has been cut down, men who have not practiced medicine come in and take these boys around, the boys get nothing from them, the hours have been cut down, the rights of the practicing physician have been infringed upon by men who have not practiced medicine and who are not M. D.'s, but are Ph.D.'s. The students tell me that they would like to have medicine taught by a real doctor.

This resolution that Dr. Hendon presented is not a resolution to lower standards. The medical students and the people all look to the medical profession for doctors to teach the students. This is simply a plea for representation, to have medicine taught by doctors, so that the students and the people on whom they are going to practice can have the benefit of the clinical experience that these men have had in practicing medicine and not from some laboratory scientist or some man who is a Ph.D. and has never practiced medicine.

S. C. SMITH, Ashland: I have studied this subject from time it was first agitated and I want to agree with Dr. Atkinson in what he says. You can pass legislation to lower standards but you can't make the young man go to the country. He is not going. When he gets a license to practice medicine he is going where he can get the money.

I want to agree with the last speaker, too, about the method of educating doctors. Some of my professors are present now and I have not forgotten them by any means. I think most of them have forgotten me. But I believe the old system was the best, and I am in favor of this resolution, because it does not request the lowering of the standard, but I am opposed to any method that lowers the standard of education. I am opposed to any effort to try to make it easier to get doctors so they will go to the country, because they are not going. You can't get them to go there, and you can't legislate morals into people. It is just as easy to make a man go out in the crossroads and practice medicine as it is to make him quit drinking moonshine liquor. We have not been able to do that yet. Any effort to lower the standard of education I am opposed to, but any method that will better the standard (and I think this resolution will better it) I am heartily in favor of, because it puts practical men in teaching positions where they ought to be.

J. R. WATHEN, Louisville: I think this is one of the most important questions that has been brought before this meeting. I think Dr. Hendon's resolution and Dr. Jenkins' paper have just been misunderstood. This is not any purpose to force the young man to go to the country at all. It is simply a change in the curriculum.

The Council on Medical Education of the American Medical Association, of which Dr. Bevan is Chairman, recently in its literature advocated the changing of teaching in our colleges. We are teaching too much, we are teaching students and they don't have a chance for study and for recreation. We are teaching along the wrong lines; we will have to acknowledge that. We are teaching, in other words, post-graduate work in undergraduate schools. That will have to come to a stop .We shall then have to establish post-graduate schools and teach the post-graduate subjects in those schools, but if we can teach the under-graduate with less hours of work and make him a good general practitioner, we have accomplished all that primary medical education should offer, and the post-graduate schools should do the rest. You can't make a polished surgeon out of a man in his under-graduate work. A great deal of the technique and a great deal of the operative work that we are teaching today is uncalled for in that way. We are not attempting to turn out men to go to the country districts, but those we do turn out we want to make excellent doctors, good general practitioners, good diagnosticians.

What has been the tendency in late years? Formerly most of the schools were run by clinicians, men who were practicing medicine and are teaching medicine today. The great bulk of our teaching force in Louisville today are made up of men like myself, teaching every day without a penny's compensation. What has been the change in the last ten or fifteen years? We are overrun. Our school is nearly half full now with all time or, better still, part time professors, as they call themselves, and they are drawing large salaries. They are stressing the importance of laboratory work. Laboratory work constitutes about two-thirds of it. They will teach them how to make metabolic tests, how to run the electrocardiograph, all sorts of blood urea, blood chemistry, blood sugar tests, things that the average general practitioner can't do, never will do, and should not be expected to do. He should be expected to send those to laboratories, that is a special line. Why should we waste so much valuable time there and neglect physical diagnosis and the like, which we can teach at the bedside?

What we wish to do is to change, if possible, our method, our curriculum, at the University of Louisville in such a way as to have more clinical teaching, make more of a practical surgeon or doctor and have not quite so much laboratory work, and have the work taught by men who have experience.

A man who teaches even as dry a subject as anatomy should be a doctor. He should know how to bring out the practical points that will be useful and valuable to the man who later on is going to practice it. The tendency has been too much of the laboratory man, too much of the paid man, and not enough of the practical side.

This is a very important subject. We are not considering it just in our own society. Every state organization in the country is discussing it. Our national organizations, our college associations, our state boards of health, are discussing it, and I am quite sure that when you men give this the deep thought that it fully deserves, you will realize that we are not teaching as we should. We will have to change the whole curriculum, as Dr. Bevan said. I know it is an enormous problem. I have given it a good deal of time.

I have been lately appointed by the Executive Committee as Chairman of the Committee on Curriculum. It is a bigger problem than I thought, and one we shall all have to consider.

I think the thoughts Dr. Jenkins and Dr. Hendon have given us are good thoughts. Those men have been teaching thirty years without a penny. I believe they understand what ought to be taught. I don't think men who have just graduated from some eastern college and have had a lot of laboratory training are practical teachers. The first thing they want is a big $5,000 salary to teach some laboratory work on the electrocardiograph, which is not of much account.

R. N. HOLBROOK, Shepherdsville: One of the worst things for a young man who is thinking about a place to locate is that you scare him to death of the country. When I was thinking of going out to Shepherdsville I went around and asked some of my friends in Louisville, and not one advised me to go, not one thought I could make a living. If you will encourage these younger men and find a location for them, there are many of them who would like it.

I have talked to many of my friends who are graduating and are internes and they say, "Do you know of any place in Kentucky where I might get a location?" They are all wanting some place to go, and they hear the doctors saying they can't get the men to the country.

One of the chief things is that you scare the young doctor to death of the country talking about it.

Any young man who will go to a small community, a little town of 500 population or a little larger, and will really do the work that we are taught to do and are able to do, can make a living, if he doesn't do anything but take out tonsils.

J. H. PRITCHETT, Louisville: The average student coming from the university now is better trained than he was several years ago . The whole idea as outlined by Dr. Hendon and Dr. Jenkins is not where a man shall go, but that when he gets to his fourth year and gets a diploma, he will be better able to be an ordinary physician and not have in his mind a whole pile of statistics, what happened at Johns Hopkins Hospital in 1492 or any other year, or what happened at Massachusetts General, or how many cases they had of typhoid fever, which doesn't concern you or me at all. I have been at the university since I graduated in 1911, and for the last four or five or six years, when I go to the hospital now, I am a guest, rather than a practitioner on the board teaching students.

Quite a few of the men over the state tell me that they are not equipped properly to practice medicine; they have in their minds things about non-protein nitrogen, they know about the electrocardiograph by reading and seeing one, and never expect to have one in their lives.

A great many of them come to the cities, become assistants, and of course make a living. A man told me the other day that he went to Memphis, not from our school but from Vanderbilt, and when he got there a certain doctor whom most of you know, a big surgeon there, said to him, "Boy, go to the country or go home."

The boy did it. You may recall a few weeks ago having read in the SOUTHERN MEDICAL JOURNAL, along this same line, that some of the biggest men in the South, men who were teachers, agreed that they were in the wrong. One man especially went into great detail about the big heavy books which the student was bound to read, so he had very little time for the actual practice of medicine on the wards, and when it came to examination this man cited a series of questions which I don't remember, I couldn't answer them anyhow, they were way beyond me, some highfalutin knowledge of chemistry which he will never use when he gets out. The whole idea of Dr. Jenkins and Dr. Hendon as I see it is not to force all you gentlemen to a conclusion, but to make it easier for this state and other states as well to put in all districts, not only the country, men who are better able to practice, in other words men who have had clinical work, who know the signs of typohid fever, who recognize a heart and pneumonia early, and things of that sort rather than wanting to have an x-ray, microscope, electrocardiograph and all those things to diagnose measles.

W. M. MARTIN, Harlan: I don't think it is a question of where a doctor shall go to practice medicine, whether he will go to New York or out to the hills of Kentucky, I don't think this resolution has anything to do with that whatever. I do think there are a lot of young men coming out of the schools into our communities to practice medicine who don't know anything, or I don't, one or the other, I don't know which. In one or two instances I have fooled around and let the patient die while they were trying to do some laboratory work. Before that I went ahead and operated and saved the patient's life.

I had a man come in from the mine some time ago with his leg crushed into jelly. The young doctor said, "Do you want an x-ray of that?"

I said, "No, I am going to take the leg off."

He thought it was very necessary to take an x-ray. I could just take the man's leg and turn it around as if there had never been a bone in it. I said, "You can do your x-ray work after I get the leg off. You can make that a special study if you want to."

I certainly very strongly favor this resolution, having seen so many young men in the last two years come out of school who seem to have no practical knowledge whatever about the practice of medicnie, in other words, it is all laboratory work. I know very little about it, but I do know that in looking back over my school days and our old faculty, I remember such men as H. H. Krank and Thomas Stucky and men who had large experience in the practice of medicine as surgeons and general practitioners, and I don't think today the younger men in school who have taken their places as teachers of medicine are a bit beyond those old fellows, and not nearly so good, because the young men then could go out and actually begin the practice of medicine.

SECRETARY McCORMACK: I think this is one of the most valuable discussions that I have heard on this subject anywhere. Necessarily, I have had to consider very seriously the questions that are here being discussed.

We have confronting us two courses. Either the medical profession is going to control medical education, or it is going to be controlled by professional educators who are not physicians in the sense of practicing medicine in private practice. We have come to the parting of the ways, and this Association is going to determine the matter to a very considerable extent, it is going to determine it as far as Kentucky is concerned certainly. The people of Kentucky have entrusted to us medical education and public health. The members of the legislature have repeatedly said that they are perfectly willing to enact any legislation in regard to medical education that is recommended to this Association.

In recent months I have had the opportunity of having had official conferences with practically all of the members of the Board of Trustees of the University of Louisville, at their invitation. They have asked the State Board of Health and the State Medical Association to advise them in regard to these problems. They want our advice; they want to do what we want done. I believe the thing for us to do, those of us who have made a study of the question at least, is to urge upon our fellows that we make these recommendations, and if we have not already studied the matter and don't know anything about it, it is time for us to begin studying it, because it is at the very foundation of our whole system. I don't believe for a minute that any man ought to be in a controlling position in regard to the education of any medical student who is not a physician. It is all right to use them as adjuvants, it is all right to use orderlies and nurses and all the things we use as assistants in the practice of medicine, but use them as assistants and let them know they are assistants and never let them get control of the line of procedure. We are either going to be the generals in this march or we are going to be privates, and we are going to decide whether we are going to be generals or privates, because by our inaction we can stay asleep for a very short time and we will find ourselves in the position of being on the outside looking in, as many of the older heads in the profession are now doing.

I was particularly impressed with what Dr. Smith and Dr. Holbrook and Dr. Atkinson said. I think all three of them are right and all three of them practically said the same thing. I don't think there is any legislation in the world that is going to locate a doctor anywhere unless you provide him with a salary when he goes there. I think Dr. Holbrook is right that at the present time there are more than 1,000 vacant practices in Kentucky that will pay a man from $4,000 to $10,000 a year, far more than the average physician in Lexington and Newport and Covington is making. I don't think there is a doubt about that.

There is plenty of financial opportunity for physicians to locate in the country. Our system, though, has not been directed along that line. I fully agree with Dr. Smith that there not only should be no lowering of the standard of medical education, but that the standard of medical education should, and always should, increase. There will be times when it may seem to be lowered, but it will always be increased because the public will always demand that it be increased and the profession would not be content without raising the standard constantly. But when we say that we are raising the standard and at the same time are increasing indefinitely the number of subjects in the curriculum, when we are taking every single waking hour of the medical student, and two or three or four hundred members of a faculty, as in many cases there are now, are coming in contact with that student and each one is trying to teach him all he knows, as a result you see the difference between men like Dr. Atkinson and Dr. Holbrook, and many of the men that we see that we are coming in contact with constantly, coming into the office almost crying because they are unable to do anything but be an assistant.

The young man is imitative, he is attracted by the opportunity presented to him by some member of the faculty, all-time or part-time, he becomes a physiologist or a roentgenologist or an assistant in that line or this line or the other line, and he devotes almost his entire time to the study of that particular problem and is being used as an assistant during all that time, and at the end of his course of practice he has not fed at the table like you, or you, but he has been fed on a particular line of diet that has enabled him to be a half-baked practitioner, a specialist in some particular line, instead of having a broad foundation built for him that the undergraduate medical school should build.

I strongly urge that the members of the Association approve the resolution that has been offered by Dr. Hendon. In addition to that, I don't know when I have been more encouraged than by the thoughtful report of Dr. Jenkins, and I believe the Association should create formally a continuing committee (we have always had a Committee on Medical Education, it has been practically a continuing committee), members of which shall be elected for from three to five years, so that only one member of the committee retires each year, and that the members of the Board of Trustees of the University of Louisville, and the Legislature, should have the privilege of consultation with such a committee that is giving careful study to these problems of medical education and are ready to hear and listen to them. They are eager to get the information, they can't tell from the published things that so frequently are general in their character, they can't answer the particular and specific problems they have to answer in the selection of a dean or an executive committee or in the approval of a curriculum or hospital courses or clinical courses that have come up to them. It inspires one to read, in the history of this Association, that in every crisis that has ever confronted the medical profession of the people of Kentucky from medical or health lines, this Association has appointed such committees and has carefully considered the matters. In the matter of the consolidation of the medical schools, committees of the great deans of our faculties at that time, men who had given their lives to medical education and at the same time were great clinical teachers, and the members of the Committee on Medical Education of the Association working together, worked out the great plans and made the sacrifices that are amongst the brightest pages in the history of the medical profession of Kentucky. It was done after serious consideration of the whole problem.

The time has come for each of us as a member of this great profession, the greatest profession in the world, seriously to consider these problems and to do our part in their solution. We can't in the House of Delegates in the limited time in which we are in session, discuss the details; all we can do is discuss the principles involved. But I think one of those principles that is easy for any one of us to understand, and understand without any great amount of discussion, is as to whether we want medical education to continue under control of men who have never practiced medicine or whether we want medical education to be directed, as it has been done since the time of Hippocrates, by those who have the sacred fire in their possession and are going to hand it down to their successors and who will carry it on permanently from the viewpoint of service.

I hope the time will never come when our medical faculties will be instilling in every student the idea that the only thing for him to do when he goes out of school is to make a financial success. I believe the thing for them to do is teach them to practice medicine, and if they teach them to practice medicine every one of them will be a financial success. That is the secret of the thing. I think we get the cart before the horse. Out of the last graduating class of the university, more than half of them who have taken internships in other states won't come back to Kentucky; but we have already had letters in the office from nearly half of that class who want to know where they can get salaried positions, where they can have the supervision of somebody who knows how to practice medicine so they can qualify themselves to practice after having graduated and after having got through.

We have been confronted with another side of the situation. Last year we suddenly had to get twenty-eight all-time health officers. We naturally wanted so far as possible to get our own men in these positions. The first three to seven men who came in to us had graduated from our own University of Louisville within two years, nice looking young fellows. They had taken the State Board examination and passed creditably. We sent them off for the post-graduate training school in public health, and received a letter in reply after six weeks of the post-graduate course that neither of these men had either the mental aptitude, the medical knowledge or the personal character that could make them health officers. I don't know what is wrong about it, but something is wrong about an educational system that graduates three libertines and drunkards from a medical school and puts them out to practice medicine in a commonwealth. I don't know where the error is. It may be hyper-science, but it is surely lack of common sense and common honesty to be graduating men of that type.

I believe it is your duty and my duty to take a hand in the dealing of the cards that means the fate of the medical profession of the future, and I am glad to hear this discussion, I am glad to hear the different viewpoints that have been presented. I know that we are getting somewhere when we seriously consider the matter. We have got to consider it seriously, because when we go to the next session of the general assembly, or the next, legislation is going to be enacted that will repeal our medical practice act, will put us back where we were in 1888, unless we are willing to assume the leadership that they want us to assume and that they are ready to follow as soon as we give it to them. They can't know the way unless somebody who does know it shows them, and they are going the wrong route unless they are shown the right route.

I hope very much that this resolution will be passed, and as soon as it is acted upon, I am going to make a motion that Dr. Jenkins' report be approved and that the Council be instructed to make effective his recommendations.. . . . .

Dr. Jenkins as President of the Jefferson County Medical Society two years ago presented as his presidential address, an address on medical education that was mailed, by instruction of this organization, to every medical society in the United States. I don't think anything that has been done in medical education in this country in recent years has had a more profound effect than the mailing of that address to the county medical societies of the United States. Within the last six months the present Chairman of the Council on Medical Education who succeeded Dr. Bevan, Dr. Wilbur, the President of Leland Stanford; Dr. Edsell, the Dean of Harvard, and many of the other leading educators of the United States have used paragraph after paragraph of that address almost word for word, and at the last meeting of the Conference on Medical Education in Chicago, many of those taking part in the discussion used, and a great many of them specifically referred to and approved, suggestions made in Dr. Jenkins' address.

The time has come, gentlemen, when either the medical profession is going to control its destiny, or we are going to give it away and be somebody else's hired man and belong to them. As far as I am personally concerned, I believe that the medical profession should assume control of its own destiny and that we should be our own masters and that we should lead the people where we know how to lead them and lead them wisely. (Applause)

PRESIDENT ESTILL: If there is no further discussion, what shall we do with this resolution?

C. A. VANCE, Lexington: I should like to ask this question, and I should like also to hear the resolution read again. Suppose we pass the resolution. How do we know that the University of Louisville will pay any attention to it?

SECRETARY McCORMACK: Several of the Trustees of the University of Louisville have asked the State Board of Health and the State Medical Association to make recommendations to them along any lines that they see fit and they will be glad to consider them. They said they would be glad to have a committee from this Association confer with them.

PRESIDENT ESTILL: Are you ready for the vote?

The resolution was adopted.

PRESIDENT ESTILL: That will be referred to the Council.

SECRETARY McCORMACK: I move that the House of Delegates approve the report of the Committee on Medical Education and that the President be authorized to make the necessary appointments of committees thereunder and to take such other steps as will make the report of the committee effective.

S. C. SMITH, Ashland: I second that motion, with the request that I hope the Legislative Committee that Dr. Jenkins recommended will be appointed and that we will get men highly qualified.

SECRETARY McCORMACK: The Committee on Legislation is a permanent committee. Heretofore the Committee on Medical Education has been appointed from year to year, although the members have usually been re-appointed.

Dr. McCormack's motion was carried.

PRESIDENT ESTILL: Next is reports of Councilors by districts.

V. A. STILLEY, Benton: The Councilor of the First District would like to have further time.

D. M. GRIFFITH, Owensboro: I beg tó report a most wholesome condition in the Second District. We had a gain of seven members over last year. A general good feeling prevails among the doctors, except a few malcontents who look at professional affairs from a personal standpoint.

SECRETARY McCORMACK: In the Third District, Glasgow in the last two years has developed along the lines of medical organization that we are all thinking about. Through the cooperation of the Commonwealth Fund they have built largely from their own resources one of the most modern and best equipped hospitals to be found anywhere in the United States. It is developing from not only the side in which we are all interested, the side of the ordinary hospital care, but from it is being developed the preventive medicine side so that the people will be educated first as to the necessity for preventive medicine and second as to the necessity for the proper scientific care of the individuals composing the profession.

Dr. Howard's leadership in the Third District has been most effective and it is a great pleasure to introduce him with those words. He is responsible for that development.

C. C. HOWARD, Glasgow: I don't take any of the credit for that because the Commonwealth Fund paid most of the money.

The Third District was fairly well organized. I took it over after Dr. Blackburn organized it.

Each county has had meetings. We met at Bowling Green this year; we decided we would meet at Bowling Green twice. We organized the counties of Cumberland, Monroe and Metcalfe, including Barren, into the upper Cumberland Valley, for the reason that those counties were so far away up in the corner of the district. We met at two different towns in those counties. There were so few doctors there that we decided it would be better to organize those counties into one society. We are going to have a meeting in Glasgow in October.

I don't believe any of us have been sued in that district this year. If so they haven't told me about it. I think the membership is about as it was last year.

As to our hospital, we will make a report later when we report about county hospitals.

W. E. GARDNER, Louisville: Mr. President and Gentlemen: I have no elaborate report to make for the Fifth District. I think I can safely say that it has been going along in a healthful sort of way during the last year. We have had an increase in membership of thirty-five in the district during the past year. A large proportion of this increase was from the Jefferson County Medical Society.

All of the counties in the district, except one, however, have increased their membership. Oldham County had a loss of one member. So far there are only two or three doctors in Trimble County. I have made several efforts to get them together to organize a county society, but it is rather discouraging where so few men reside to get them together; we have had frequent correspondence with the few members of the profession urging them to keep up their membership in the Society and they have been somewhat negligent in this regard. I hope, however, to get up that way personally during the latter part of this year and see if we can not get some sort of organization, even with the two or three members of the profession that reside in Trimble County.

I wish to take this method of thanking the members of the Fifth District, not only in Jefferson County, but in the other eight counties composing this district, for the generous and wholehearted support that they gave when the call was sent them last winter to go to Frankfort and put up a fight to help save the State Board of Health Law. Letters were sent to the delegates and presidents of the various societies, and they did not hesitate to get into communication with their senators and many of them made personal visits to Frankfort and did effective work. It has been very gratifying and heartening to see such a prompt response. It shows that the profession generally, not only in our district, but I am sure throughout the state, are wide awake and ready to help preserve the health laws of Kentucky, and in the event of another fight I feel sure that they will render even more efficient service than they have in the past.

R. C. McCHORD, Lebanon: I have very little to report as to the condition of the Sixth District. It has been so well organized that all of the practicing physicians in my district are members of their county societies. We have not had as frequent meetings of those county societies as I would like. As I have said before, I believe that the secretaries of the societies are the active men who keep up the societies. In several instances in my district we have poor secretaries. Until we get rid of those secretaries and get men who are more active and will do their duty, we can't have any more meetings.

There is one thing that has occurred in my district, the organization of a tri-county society, rather a district society, principally organized by the Junior Atkinson of Campbellsville. Dr. Atkinson I believe was the most influential person in organizing the Society. The Society is composed of all of the counties in my district, and it meets three or four times a year at Campbellsville, which is a central point.

At these meetings the attendance has been very good and unusual interest has been manifested.

In addition to the county meetings, I think this district society is of great advantage in the councilor district.

C. A. VANCE, Lexington: I wrote out a report because I thought I would forget something.

Since my election as Councilor to the Tenth District last year, I have tried to take my job seriously and to organize and build up the affairs of the State Medical Association in this district, but I must confess that I feel rather discouraged over the prospects and over the little that I have been able to do. During the past year I have attended meetings in all of the counties which had meetings. The following counties do have them: Fayette, Cark, Bourbon, Scott, Madison, Montgomery, Estill, Woodford and Jessamine. The other counties have occasional meetings or none. In these counties I have visited the doctors personally. I cannot censure the doctors in these sparsely settled, rough counties for not having meetings when they are able to have only two or three at each meeting, and the physicians are generally very busy and unable to go to meetings, especially in the winter months. I have been able lately to assist in the reorganization of the Woodford County Medical Society. This was formerly a very prosperous county society, but in the last few years has not had any organization at all. You told me I could not do it. I hope the members will never let the society drop again. Instead of having three members from Woodford County, we should have ten or twelve, and I am sure they will have full membership.

In looking over the map of my district and contiguous counties, I decided that Bourbon, Jessamine and Scott should be in the Tenth District, so I talked with the physicians in those counties and they agreed with me about it. At my request and that of these counties, the Council very graciously allowed them to be placed in the Tenth District. I wish to thank the councilors who lost three counties from their districts, and the Council as a whole for doing this. I believe the district will be benefited by this change which will also accrue to the advantage of the State Medical Association.

In the official list of members by Councilor districts, the Tenth District is given credit for 186. It should be 235, as proven by the list below, and I have a list here of members i n each county and non-members in the same way:

County	Members	Non-Mbrs.
Bath	5	6
Bourbon	16	7
Breathitt	6	2
Clark	22	4
Estill	10	1
Fayette	93	10
Jessamine	11	5
Knott	0	0
Lee	0	4
Letcher	0	0
Madison	34	5
Menifee	0	2
Montgomery	12	6
Morgan	1	6
Owsley	0	0
Powell	2	1
Rowan	2	4
Scott	18	3
Wolfe	0	6
Woodford	3	8
Total	235	80

In the district there are approximately eighty doctors who are not members of their county societies, but who are eligible for membership. It shall be my purpose during the following year to increase the membership list and decrease the non-membership list.

I wish to call your attention to the fact that the Madison County Medical Society, the host of this meeting of the State Medical Association, is in the Tenth District, and they have made every effort to give us a first class meeting and entertainment. I am sure we will have a very successful meeting and a most pleasant visit to Richmond. I personally am very proud to be the Councilor of such a good Medical Society.

Although the work as Councilor has at times been arduous and difficult to accomplish, it has also been very interesting, and I have enjoyed the meetings and the acquaintance of the doctors of the district and the work as Councilor, and I shall endeavor in the coming year to do my best to build up the societies to the further advancement of the State Medical Association.

PRESIDENT ESTILL: I know personally of the work that Dr. Vance is doing in the Tenth District and I am very proud of the way he has gone about it. My own personal feeling is that he is the second best Councilor the District ever had, having been there myself. (Laughter)

SECRETARY McCORMACK: The Council has tentatively made the amendment to the list of counties that Dr. Vance reports, and I move that the three counties named, Jessamine, Bourbon and Scott, be transferred to the Tenth District.

The motion was seconded by Dr. Vance and carried.

W. M. MARTIN, Harlan: The Eleventh District has been getting along better than it ever has since I have been a councilor, in fact on account of the roads in that district it has been a little hard to organize. Now since some of our roads have been completed and we have some of the best roads now in the state, I find it very easy to get the doctors together at the various county meetings.

One of the greatest things that has been done in the medical profession in the Eleventh District has been the organization of five counties into what is known as the Cumberland Valley Medical Society, Harlan, Bell, Whitley, Knox and Laurel Counties. They had a meeting a week ago, I think, Saturday, of this Society at Dishman Springs, and as well as I remember had somewhere near fifty doctors.

SECRETARY McCORMACK: Seventy-three.

W. M. MARTIN: We had the best attendance and the best meeting held in the district. In fact more doctors took part in the discussion and the papers than I have ever seen. I feel sure with the completion of the Mayo Trail which ought to be graded in the next twelve months, the attendance will be even better and we will also be able to take a couple of other counties into the Cumberland Valley Medical Society. My experience has been that with this society and the organization of the various counties into this society, we have accomplished a great deal more than in district county meetings. In Harlan County they meet regularly every month, and Harlan County has been doing that for some three or four years. I don't think we ever missed any meetings.

There is one thing that we have in Harlan County that we might boast of. In 1907 we had three or four doctors in Harlan County, and now we have more than forty. Up until four years ago it was hard to get those doctors to meet, but we finally got them started, and I have found in my district that a good way to do that is to get some outside capital. We have had during the year such men as Dr. Bell and Dr. Hanes and Dr. Hendon and quite a number of men, and it always gets our men interested. I feel sure that the Eleventh District, while up until the last two or three years it has been a back number on account of the roads, now with the completion of the roads and the others that are still under construction, will be one of the best districts in the Association.

PRESIDENT ESTILL: Next is reports of Delegates by counties.

R. K. GALLOWAY, Carlisle County: We started out this year, and we have had eight members of our County Society, that includes two inactive physicians. Every man in our county is a member of our County Society, and we hold quarterly meetings. During the past year every man has been present except two, every man has had his paper at the society meeting. I think we have one of the best small county societies in the state. Every man has paid his dues and every man has attended every meeting we have had except two men who were kept away from one of our meetings.

SECRETARY McCORMACK: This County has a County Health Department in the interest of the medical profession of the county. Every member of the profession of the county was present when the Fiscal Court made its appropriation unanimously to continue the work, and the profession has established itself in public confidence so they can get what they want, which can be done in every county in the state.

S. P. OLDHAM, Daviess County: We have forty-nine active members. We meet twice a month. We have good attendance. We have lost one member recently by death, Dr. Sterman. We have a full-time health department and everything is going along good.

O. F. HUME, Estill County: I really have no report other than to say that the Society in Estill County is moving smoothly. Every physician in the County is a member of Estill County's Society. Within the past fifteen months they have installed a full-time county health unit which I am sure has the backing of every doctor in the County. I don't think there is a sore spot in the profession at this particular time anywhere.

I do regret to report that our grand old man up there, a country doctor, Dr. McDonald, who has been so fine and lovable and has been a friend to the profession throughout Eastern Kentucky, is seriously ill at this time and probably will be living only a few days, as the result of cerebral hemorrhage. When I left home this morning he was unconscious. He is a grand old man and is loved by every doctor who ever knew him. Many of the men here will regret to know that, I am sure.

E. B. BRADLEY, Fayette County: I have a note from the Secretary of the Fayette County Medical Society: "During the last twelve months we held eleven scientific meetings at which twenty-three papers were presented. We also had one executive meeting and one social meeting.

"We added eight new members to our roster. One of these was a transfer from another Kentucky county, one was a recent graduate just beginning to practice, and six were transfers from other states. We now have ninety-three members which include practically all eligible physicians. Among the non-members are fifteen white and thirteen colored physicians."

J. B. KINNAIRD, Garrard County: According to the statistics published in the last September number of THE JOURNAL, the Garrard County Medical Society had nine members in 1927 and only four members in 1928, a loss of five members. That seems a poor showing, but deaths and removals to other locations have reduced our roll. We have had two deaths in the past from automobile accidents. At present we have seven physicians in the county, two of whom recently located there. We hope at the next meeting we will have both of them become members.

Our Society was functioning several years before the reorganization of the State Association. Although our Society is not moribund, we have been doing very little scientific work but can be readily awakened to renewed vigor.

Where there are only four members it is a difficult matter to secure a quorum and we rarely have more than two to meet regularly, not on account of lack of interest but on account of impossibility to find all at leisure at the same hour.

Good fellowship exists among our members and all are at peace trying to make a livelihood. We trust that in the future our members may strive to make the Garrard County Medical Society a model association and be productive of much good.

SECRETARY McCORMACK: The Garrard County Medical Society showed how much account they were. All the members of the Society and the Auxiliary were present at Frankfort on numerous occasions, and their Representative in the House, although subjected to the most outrageous pressure that a man ever underwent, almost, voted with his medical profession every single solitary time. He said they had his confidence and knew what they were talking about, and the rest of the people were talking politics, and while he was in politics on one side he was representing the best interests of his people on the other and he stood firm throughout the session.

A. W. DAVIS, Hopkins County: I think we have the most active inactive society in the state. We haven't had a meeting in so long I can't remember. I don't think we have lost any membership, and we are paid up pretty well, but so far as meetings are concerned we don't have any.

W. HAMILTON LONG, Jefferson County: Our delegation did not organize and elect a Chairman or anyone to make a report. I am not familiar with the condition at the present time, exactly. My impression was that the Secretary was to have been a delegate and he will be here later on. All I know is that it is going on a little better than usual. As Dr. Gardner said in making his Councilor's report, as to membership, some twenty-odd members is better than it was last year.

SECRETARY McCORMACK: And than it has ever been before.

W. H. LONG: For the information of the profession of the state, who will read these minutes with great care, I should like to say that the Jefferson County Medical Society has the best regular scientific meetings that can be held, and members of the profession from out in the state are always cordially invited to be present at these meetings. It is interesting to see the increasing number of members of the profession who arrange to be in Louisville on the day of the County Medical Meeting. They look it up in the calendar of County Societies and are there that day. The meetings are the first and third Mondays, and it is very gratifying to see the members of the profession of the state take as much interest as they do in attendance.

J. W. SCUDDER, Madison County: We have thirty-three active members of the Society. We have four men, one in Richmond and three out in the county, who are not members. We meet monthly. We have never had a meeting at which we have had less than sixteen members attending. All members have responded very well when put on the program. We would be glad if we could report everybody a member, but we have three men out in the county who are not very active in the practice of medicine and one man in town who happens to be a member of the Estill County Society, so he is a member of one society anyway.

D. H. BUSH, Montgomery County: I have no report to make except that we have sixteen in our county, and twelve are members. Two of them we could not expect to belong to our Society, and two more I could not persuade to become members at this time.

We don't have regular meetings. Once in a while when Dr. Vance prods us a good deal, we will have to have a meeting, and do very well in the County Medical Society.

SECRETARY McCORMACK: While Morgan County is not represented by a delegate, the Morgan County Auxiliary Society is represented by a delegate who is present at the meeting.

J. W. SAMS, Oldham County: I just want to correct a little mistake that Dr. Gardner made. We have gained two members instead of losing. It was Owen County that lost two. We have ten members now. We had eight last year. We have about three meetings a year. We have to feed them sometimes.

SECRETARY McCORMACK: Good ones. Dr. Sams has dinner at his house and if you get an invitation you had better go, and don't eat anything for lunch that day.

E. A. ANDERSON, Scott County: The Scott County Medical Society meets regularly on the first Thursday of each month. There are sixteen doctors in the county, fourteen of whom are affiliated with the Society. There are three retired doctors in town who are not affiliated. Scott County also has a full-time health officer who is rendering most efficient service with the hearty cooperation of the other medical men. At the present time, the city and county schools are ninety-eight and a half per cent vaccinated against smallpox, thirty-eight per cent immunized against diphtheria. There have recently been 203 inoculations against typhoid fever although there has not been a case of this disease in the city or county. Clinics have been held from time to time on venereal diseases, tuberculosis, dental, pre-natal, child health. Our society has been fortunate in having several outside physicians who have given us addresses which have been most interesting and instructive.

W. B. ATKINSON, Taylor County: In the last year the Taylor County Medical Society has not been able to hold as many meetings as they would like to, and we have fallen down on account of bad roads. We have had a number of meetings.

Our Councilor, Dr. McChord, has been a visitor on several occasions and read a very valuable paper in November. Other speakers were Dr. E. S. Allen and Dr. A. L. Bass, who were guests of the Society at the annual meeting in December, and in June Dr. O. R. Miller, Dr. Emmet F. Horine and Dr. Robert L. Kelly were guests.

Our neighboring physicians joined with us to make these meetings a success.

On September 6 of this year there was a clinic of crippled children, which was very successful, held under the leadership of Dr. Strickler.

In the coming year the Taylor County Medical Society has been asked by the Campbellsville College to furnish nine talks before the student body of the school. We believe that this shows that there is some interest in the profession by the people of the county.

I want to emphasize what Dr. McChord said about the success of the meetings that we have had with our groups. Dr. McChord has been there at each meeting and we have found them so successful that we want to continue to hold those meetings.

The meeting adjourned at four-forty o'clock.

Second Session, September 10.

The second session of the House of Delegates was called to order at seven fifteen by the President, Dr. Estill.

PRESIDENT ESTILL: We will have the roll call, Mr. Secretary.

The Secretary called the roll.

SECRETARY McCORMACK: There is a quorum present, Mr. President.

PRESIDENT ESTILL: I will ask Dr. Barnett Owen to read his report as Chairman of the Program Committee, and also report as Chairman of the Committee on Crippled Children.

W. BARNETT OWEN, Louisville: I will give you first a short report on the program. The program speaks for itself, really.

It was the endeavor of this committee to have representation on the Kentucky State program from every Councilor District in the state. While this was not entirely successful, the program at this meeting is composed of thirty-one papers, three invited guests as follows:

H. Kennon Dunham, Cincinnati, Ohio
Fred Rankin, Rochester, Minnesota
Stewart R. Roberts, Atlanta, Ga.

Sixty-seven per cent of the essayists on this program have never appeared before on the Kentucky State program. There are nineteen subjects under discussion, presentation of one original apparatus, demonstration of three of the more frequent and simple types of fractures; gold medal exhibit on tularemia.

Two men have been designated and notified to open the discussion on each paper.

(Signed) J. H. Blackburn,
A. T. McCormack,
W. B. Owen, Chmn.
Program Committee.

REPORT OF COMMITTEE ON CRIPPLED CHILDREN

I will now give you the report of the Committee on Crippled Children. I herewith submit the following report on the work which has been accomplished for crippled children under the direction of the Kentucky Crippled Children Commission from September, 1927, to September, 1928:

Clinics: It has been found by the Kentucky Crippled Children Commission that the most accurate method of obtaining satisfactory statistics and also in locating crippled children, is by holding diagnostic clinics throughout the state. The following clinics have been held during the past twelve months:

Danville clinic. Number of children attended, 106. Counties included are: Boyle, Casey, Garrard, Lincoln, Mercer, Rockcastle, Jackson, Marion and Washington.

Mayfield clinic. Number of children attended, 91. Counties included are: Ballard, Calloway, Fulton, Graves, Hickman, Livingston, Lyon, McCracken and Marshall.

Covington clinic. Number of children attended, 63. Counties included are: Campbell, Kenton, Boone and Pendleton.

Harlan clinic. Number of children attended, 22. Harlan County only.

Barbourville clinic. Number of children attended, 38. Counties included are: Bell, Clay, Knox and Whitley.

London clinic. Number of children attended, 49. Counties included are: Jackson, Laurel, Rockcastle and Whitley.

Pikeville clinic. Number of children attended, 36. Pike County only.

Paintsville clinic. Number of children attended, 40. Counties included are: Johnson, Floy and Magoffin.

Ashland clinic. Number of children attended, 86. Counties included are: Boyd, Martin, Carter, Greenup and Lawrence.

Owensboro clinic. Number of children attended, 73. Counties included are: Daviess, Hancock, McLean, Muhlenberg and Ohio. The clinic in this district was held principally for children who were stricken with infantile paralysis, in the last epidemic. It is pleasing to report that braces and corrective shoes have been put on each child who suffered in this last epidemic, consequently avoiding a bad deformity, which so frequently follows infantile paralysis.

Orthopedic centers. As the work has grown to such an extent, it has been found a most satisfactory way in caring for crippled children to locate other hospital centers in the state in addition to Louisville. To this end, Lexington and Ashland have been developed during the past year.

Ashland center. The Baptist General Hospital and the Kings Daughters Hospital at Ashland, in co-operation with Mr. Ben Williamson, a member of the Commission, and Dr. Arthur Jones, orthopedic surgeon of Huntington, West Virginia (they had no orthopedic surgeon there in Kentucky, and it was necessary to secure the service of this man), are caring for the children in the Big Sandy Valley. This center has been a great help to the work on account of the distance from Pikeville and adjoining counties to Lexington and Louisville.

Lexington center. A group of interested citizens of Lexington have organized what is called "The Lexington Chapter for Crippled Children." This small group of men and women have raised sufficient funds to enable them to have a paid worker there. This worker is under the direction of the Kentucky Crippled Children Commission and works in hearty co-operation with the Director. The Lexington Chapter is financially responsible for five children in the hospital. This center is primarily for the children who live in the Kentucky Valley. The additional centers have been a great help, as they have enabled the Commission to care for a large number of children. (The local unit of the National Shrine, in connection with the Good Samaritan Hospital, in charge of Dr. Brown there, is caring for about twenty-five children in addition to this).

Statistics. There have been 514 children treated and discharged from the hospitals in the past twelve months. Due to the splendid co-operation from hospitals, doctors and orthopedic appliances for crippled children, it has been possible to correct a child for approximately $300.

Education. The Louisville Board of Education has cooperated to the extent of placing teachers in three Louisville hospitals, and the Junion League of Louisville maintains teachers of occupational therapy in two hospitals here.

The Kiwanis Club of Lexington, through their active membership, will furnish and maintain a class-room for crippled children at the Good Samaritan Hospital at Lexington for the coming year.

Co-operating agencies. The Kentucky Crippled Children Commission is greatly indebted to the following agencies whose co-operation has materially aided the progress of this work:

The Kentucky Society for Crippled Children, which has supplemented the funds and work of the Commission.

The Children's Free Hospital, Kosair Crippled Children Hospital, Kentucky Baptist Hospital, Norton Infirmary, St. Joseph's Infirmary, St. Anthony's Hospital, Jewish Hospital, Red Cross Hospital, of Louisville; the Good Samaritan Hospital and St. Joseph's Hospital of Lexington; the Baptist General Hospital and the Kings Daughters Hospital of Ashland, which have so comfortably housed and efficiently cared for our crippled children.

The Illinois Central; Louisville and Nashville; and Louisville, Henderson and St. Louis Railroads, which give passes or special rates for crippled children over their roads.

The Traveler's Aid Society, whose representatives assist in meeting trains.

The Louisville Taxicab Company, which provides free transportation for crippled children.

The State Board of Health and its coworkers, who have rendered valuable assistance throughout the state. The office is maintained in the Board of Health Building, free of any cost to the Commission.

The Rotary, Kiwanis and other civic and luncheon clubs, which have assisted in the organization of clinics and in follow-up work.

The orthopedic surgeons of the State, who have given generously of their time and service.

Appropriation. While the General Assembly of 1926 voted a generous appropriation of $200,000 for the biennial period of 1926 and 1927, it was found by the Commission that if the work progressed as it should, and the thousands of crippled kiddies were given their birthright, it would be necessary to have an increased appropriation of $100,000 for the biennial period of 1928 and 1929. The increase was not granted, not from any lack of interest on the part of the Budget Committee, but on account of the large demands made on the state it was impossible to increase the appropriation this year.

The Kentucky Society for Crippled Children, composed of Rotary, Kiwanis, and other civic clubs, and individuals interested in the welfare of crippled children, was the parent organization in Kentucky concerned with this work, and at first shared all expenses with the Crippled Children Commission. When the increased state appropriation went into effect in 1927 the Society was relieved of much of its financial burden, but has continued to handle publicity for the Commission, to assist with clinics, and to supplement the work of the Commission in every possible way.

Since the appropriation could not be increased at the last session of the General Assembly, and in order that the work may not be curtailed, the Society plans to conduct a state-wide membership campaign in October, to further educate the public and to raise the sum of money needed by the Commission. The state has been divided into twenty districts with a chairman in each district, who will handle the campaign with the assistance of local committees under the direction of a state chairman and executive committee.

Future plans. Upon the outcome of this membership campaign depend some of our plans for the future. The Commission hopes to establish permanent centers in each of the above mentioned districts in order to maintain the interest of each locality in this work and to facilitate follow-up work among the discharged cases. As the number of children under treatment increases, the necessary frequent personal visits cannot be paid in each home, and the best method of keeping in touch with these cases is believed to be through Follow-up Clinics, near their homes, where the children can be brought at regular intervals for re-examination by doctor and nurses. If a large number of such clinical centers can be set up over the state, we believe we shall have a permanent and practical foundation upon which to base our work of locating, examining and correcting crippled children in Kentucky.

John D. Trawick,
Wm. M. Brown,
W. B. Owen, Chairman.
Committee on Crippled Children.

PRESIDENT ESTILL: That is a work of which the Kentucky State Medical Society is justly proud. For that reason I wanted Dr. Owen to read the entire report. I want to say what he, in his characteristic modest way, did not say in his report, that it is only through the enthusiastic and efficient direction and work of Dr. Owen that this work has been made possible for us at all.

Report of the Committee on Publicity, Dr. Floyd, of Richmond, will be the next topic.

JOHN B. FLOYD: I have no written report. My authority as Chairman of the Publicity Committee has been delegated to Dr. Arthur McCormack and his co-workers. They have done it so efficiently that I am sure every doctor in Kentucky realizes that there has been no physician in Kentucky who has failed to receive notice of our meeting here.

PRESIDENT ESTILL: Next is the report of the Committee on Woman's Auxiliary, by Mrs. W. M. Martin, of Harlan. (Applause)

MRS. W. M. MARTIN: Mr. President and Members of the House of Delegates: It is my privilege and my pleasure to bring you greetings from the Woman's Auxiliary, your organization of your own wives, mothers, daughters and sisters, together with the widows of those of your confreres who have responded to their last call and whom you miss so greatly now.

I count this privilege a very great honor and wish that I had the gift of oratory that I might more creditably impart to you a satisfactory report of the work of this splendid body of women during the past year.

First may I not express our appreciation for your interest and for the space which you give us in your Medical Journal, and for all of your constructive criticism. This is what makes our growth and usefulness possible. May I not bespeak your continued cooperation for our new president during the coming year?

At the close of the last annual meeting in Owensboro, October 6, 1928, we had determined upon three objectives for the year:

Organization; Hygeia circulation; Historical collections of data for your Kentucky Medical History. We also decided to publish a Year Book.

We found our organization consisted of 266 members in thirteen county Medical Society Auxiliaries, all paid-up memberships.

Today we are happy to announce that we have grown some. We have 340 paid-up members and nineteen county auxiliaries, all functioning. The paid-up county auxiliaries are:

Allen, Ballard, Breckinridge, Carlisle, Daviess, Franklin, Garrard, Graves, Harlan, Jefferson, Laurel, Marshall, McCracken, Oldham, Perry, Taylor, Trigg, Whitley, Madison.

There are also some county organizations, Christian, Bell, Knox and Russell, that have, as yet, done little with a definite program, but at least they have taken the first step. They have organized. They need your encouragement and advice. Then watch them work and grow!

The Hygeia circulation of Kentucky has grown from 48 subscriptions, September 1, 1927, to 211 subscriptions, September 1, 1928. Credit for a large share of this increase belongs to your auxiliary.

With your cooperation a six months' subscription to Hygeia was sent to the home address of each of the 138 legislators of our last General Assembly, together with a Christmas letter. Judging from the results in Frankfort, we were a little late with this educational material.

This Hygeia circulation is perhaps our greatest service to the parent body, the American Medical Association. As this is one of the most profitable ways for us to raise money for our county treasuries, we hope that each of you will send in your subscriptions through your county Hygeia chairman, or through our state chairman, Miss Mayme Sullivan, who is now taking subscriptions in the Hygeia booth in the exhibit hall and will be glad to welcome you.

Our collection of historical data for your State Medical History is growing. This past year we have added to this collection for you and will pass on to your secretary some of the facts and stories about the lives of some of the physicians who have honored your profession. This work we plan to continue and hope to be able to add more valuable material to your records.

Our Year Book containing our Constitution and By-Laws, also a model constitution and by-laws for the county organizations, the names and addresses of the state and county officers and members of our several county auxiliaries, together with the date and place of organization and other valuable information helpful in our work has been published and I herewith present you a copy for your records.

The most important work of the year, however, was not a part of our program, but came as war and other dire calamities often do—"like a thief in the night"—and required quick, determined action. I refer to the fight against the "Ripper Bill" aimed at you, the State Medical Association of Kentucky, through the State Board of Health in our legislative session in Frankfort. We, of course, want your organization to have charge of the health laws and the health activities of our commonwealth. This assault against you at first stunned us. We women did not know what to do or how to do it, but we just had to do something. So we started with the telephones and kept them busy, also the telegraph wires and Uncle Sam's letter carriers.

May I not present these copies of some of our official letters and petitions for your records? They represent only a few of our communications sent forth as ammunition in the fight against that dastardly demonstration of the powers of greed and political expediency against your well-organized, splendidly developed, scientifically and humanely executed effort to bring health and well-be--

ing into the lives of every man, woman and child in our commonwealth, stressing particular emphasis on the work for the helpless, the babies, the children, the mothers, the tubercular, and others suffering with the handicaps of ill health.

Some of us even went to Frankfort despairing, but still hopeful, and watched and waited during all those fearsome hours, eager to be useful to you and of service to the people of Kentucky should opportunity come our way. Great was our relief when at length the session closed with you victorious in saving your organization. However, that victory was later dimmed a bit by the Governor's veto of the much needed appropriation for maternal and child health work and for tuberculosis work. What can we do about this?

Is there not some possible way to provide the means to continue and to enlarge this work for our helpless and handicapped Kentuckians? And can we not, as your aids, your auxiliary, help you to develop and perfect that project?

We await your command. (Applause)

PRESIDENT ESTILL: While it may be possible that the Woman's Auxiliary was a little bit late with prophylactic measures and preventive measures at the legislature, I am sure that all of us who were there will admit that they came in with us when the patient looked moribund, and we didn't lose the patient.

SECRETARY McCORMACK: Mr. President, I should like to move that the report be accepted.

The organization of the Woman's Auxiliary has been a little slow in Kentucky. Almost everything in its development is a little slow in our state. But it has come, and come with a bang. I want to call the attention of the delegates from the counties which have not yet organized auxiliaries, to their importance. The most important thing we have to do as a profession is to get the people who need medical attention to realize that need and secure that attention. The various clinics we have held in various parts of the state have demonstrated very definitely the facts that will be brought out more conclusively and more in detail by the Committee of One Hundred which is now investigating medical service and medical organization in the United States under a large grant from several of the foundations, that most of the people who need medical attention don't get it at the time they need it at all, that a minority of the people who are sick, injured, who have defects that prevent them their proper development, are not coming to doctors' offices. Many of them are taking patent medicines, many of them have not progressed beyond that stage of education where they read the patent medicine advertisements, or the church paper, or the daily newspaper, or the Bible and believe all of them because they are printed. They have learned to read and write, but have not learned to discriminate between the things that are true and the things that are false. This education of the adult is going to be carried on by adults who can lead, who can persuade, and one of the most important functions of the Auxiliary is the peaceful permeation of the woman's organizations, the church societies, the women's clubs, the parent-teachers' associations, and the other great organizations that are definitely developing public health programs in line with our leadership, accepting that leadership.

Great national committees of the parent-teachers' organization, which is the largest of the women's organizations, have definitely accepted the co-operation of a committee from the American Medical Association, which is meeting with them almost monthly. Both organizations have paid men or women who are developing this phase of their work.

Hygeia is the best literature which is now being published authoritatively for people to read that will teach them sane things about their personal health. It should be in the hands of every patient of every doctor in Kentucky. It will come sooner or later; it will come sooner if we help it to do so; it will come later if we sit still and do nothing about it. In every doctor's waiting room, Hygeia should occupy a place on the table, and there ought to be some subscription blanks there that can be used by patients who want to know the things that the doctor needs to have them know and doesn't have time to teach them, himself. Hundreds of thousands of fake journals and magazines and periodicals are getting into our homes daily and constantly, carrying false information, and it is only by inoculation with the truth that we can get this plan over.

The Woman's Auxiliary in the United States has increased the circulation of Hygeia by more than six hundred per cent already; they have turned the deficit that formerly confronted the American Medical Association at each of its annual sessions to a very encouraging surplus, and since the meeting of the American Medical Association in Minneapolis, the subscription list of Hygeia has been almost doubled, and ninety-five per cent of that increase has been made by the Woman's Auxiliary.

In the legislature at Frankfort, the Woman's Auxiliary and its sister organization, the women of the state, deserves as much credit as our own, if not more, in the defeat of the adverse legislation and in securing the practically unanimous support we had from the members of the legislature, who were able to give support in response to the intelligent people back home.

Your work was intelligently directed, and was intelligently and effectively done.

Mrs. Martin, your president, was in Frankfort during most of the session, and her quiet, persuasive, kindly conversations with members was one of the very important factors in keeping up the morale of our supports and helping us to win the fight.

In the various counties in which this work has been organized, I can point out accomplishments that would not have been made otherwise. In the county health departments that have the Woman's Auxiliary also, there is a co-operation that is not secured in the other counties. We look forward with great eagerness to the organization in the remaining counties. In the counties of the state which have not yet secured all-time county health officers, the Woman's Auxiliary will be one of the important factors in securing that desirable end.

It is a great pleasure to commend this organization to your thoughtful consideration.

There are physicians who are so selfish that they would rather have the fine minds of the women they have married so bound to their cooking stoves and their telephones that they would begrude the little time that is necessary for them to give this great service to the public. That was an era through which we all passed some hundreds of years ago. We rather liked these women as slaves. We have been somewhat reversed now and are getting around to the other side, but I think it is better for us to help keep them busy and help them to use the increased education and the greater intelligence they have in a public service that is worth while, that will help our profession to realize its objective sooner, that is, a healthy population, than to permit them to waste all of their sweetness on us.

I have found, and I think those members whose wives have actively participated in the organization of the Auxiliary have found, an increased appreciation, a finer inspiration, a better support in our homes, than we would otherwise have found. Just as golf or some other recreation helps us in our activities, I believe the activities of these women in this larger field of usefulness are appealing to a larger number of them from day to day.

There is, of course, that class of our wives who have specialized in bridge as some of us have in some of the lesser branches of medicine, and they will insist on developing along that line.. They can't get very far, unfortunately, because it is an empty sort of thing, and they are so grateful if their husbands will give them an opportunity to develop a really useful activity, instead of the burdensome sort of thing that so frequently hampers their active lives. They can't use their broad mentalities, their great usefulness, their real education, in these trivial things, but they can most effectively and most persuasively do great things for the benefit of the public if they are but given the chance.

With that thought in view, I want to express what I know is in the hearts of every one of you, our appreciation of this message from this sweet, modest woman, who has come to us with a trembling voice, but who I know has reached every one of your heart-strings with a message and appeal for your support and help, and I know you will give that support and that help enthusiastically and actively, because you believe in her and believe in the wife that you love, and believe in the accomplishment of the purposes of organized medicine; and every agency that we can secure as an ally in accomplishing that purpose, every intelligent individual that we can inspire with a belief and a faith in us, will strengthen our leadership and will develop us in such a way that we will better and sooner accomplish our purposes.

PRESIDENT ESTILL: It is a wonderful thing to preside over a meeting where the Secretary is so able to say just what you would like to say, but can't. That is true of Dr. McCormack. All of us know that.

I just want to say for the benefit of the ladies who are not in the habit of attending these meetings, that it is the custom in the House of Delegates, for Dr. McCormack to make all the motions, second them himself, and carry them. (Laughter)

Next is the report of the Committee on Periodic Health Examination, by Paul A. Turner, of Louisville.

PAUL A. TURNER, Louisville: Since Dr. Flexner cannot be here, I was asked a few days ago to write this report. The time has been so short that I have not been able to get in touch with each county society to see what each one has done in this regard during the last year. I only know what I have done myself.

As early as 1861 Dr. Horace Dobell urged periodic health examinations in these words: "That there should be instituted, as a custom,. a system of periodical examinations to which all persons should submit themselves and to which they should submit their children." Not until fourteen years ago was the real value of this form of examination recognized when several insurance companies began to make use of the procedure, and it was but six years ago that the American Medical Association stressed the subject.

Since that time the National Health Council has carried on a nation-wide campaign urging all persons to have an examination on each birthday. This campaign has resulted in requests for health examinations which the medical profession has not been prepared to give. The American Medical Association has, therefore, urged that each physician equip himself to make the searching examinations required and to prepare himself to give the hygienic as well as the medical advice that the health client may need.

The physician of today has been so engrossed with the treatment of disease that it is rather foreign to him to endeavor to analyze an apparently well individual and direct that person's life. However, that is what the old country doctor used to do on many occasions, and for that reason he held, perhaps, the love and confidence of his community to a degree that the practitioner of today does not even hope to attain.

Nevertheless, the way is open through the making of careful periodic health examinations for our profession to regain the intimate touch with the family and the whole-hearted confidence of the community, which it has lost to the extent that many cults are allowed to flourish.

For the last three years this Association has stressed the importance of these examinations and several district societies have devoted a meeting to a demonstration of how a health examination should be conducted. Two sessions were also given to the subject in the recent post-graduate course given in Louisville. I may say that the attendance at those lectures and the demonstration at the clinic, even though the hour was late in the afternoon, was practically the entire attendance at the meeting. I was told that the men really have found something that they have been looking for. The interest manifested surprised me very much. Interest has undoubtedly been stimulated and your committee is certain that not so many persons are turned away as formerly with the refusal of the doctor to make the health examination which was sought.

The desire of the public for these examinations, however, still seems to be greater than the preparation of the physician to give them, and your committee therefore makes the following recommendation in addition to those of last year's committee:

Namely, that each county society devote an entire meeting to the subject of periodic health examinations. A symposium is suggested covering such subjects as overweight, underweight, constipation, sleeplessness, nervousness, arterial hypertension, correction of defects and focal infections, stressing the advice that should be given in writing to the patient. Those subjects are things that the ordinary physician very rarely thinks about. When you get down to study each one of those subjects mentioned and to formulate the advice that you should give to correct those different defects, which can all be corrected easily by hygeinic living, it is something that the ordinary physician in the ordinary practice does not do, and it is something that we all must do, because we are going to be sought for to give these examinations in increasing numbers. As a guide in presenting these subjects the American Medical Association pamphlet on Health Examinations is suggested, or, better still, the book, "How to Make the Periodic Health Examination," by Drs. Fisk and Crawford, published by the MacMillan Company of New York.

As such a symposium together with the study and discussion of hygienic advice which most every patient needs can well take the time of an entire evening, it is further recommended that the actual demonstration of making the health examination be allotted a full hour at a subsequent society meeting.

VIRGIL E. SIMPSON, Louisville: I move the report be accepted.

The motion was seconded by Dr. S. C. Smith and carried.

PRESIDENT ESTILL: I will ask Dr. Palmer to make his Report of the Committee on the Report of the Council.

E. R. PALMER: Mr. Chairman, members of the House of Delegates: Your Committee desires to state that it has studied this report very carefully, that the Council is to be highly commended for its thorough and painstaking consideration of the various important problems that confront the medical profession of Kentucky and the clearness with which they have been brought before the House. Whereas we most heartily recommend that the report be indorsed and adopted in its entirety, yet there are some matters touched on in it that we deem of too great importance to be so casually passed over.

1. "The paramount issue before the Medical profession of Kentucky and the United States is the supply to the people of our country districts and small towns medical service."

The Council has shown by an exhaustive study that this is a problem which is rapidly becoming more and more acute and unless something is done by the organized medical profession to correct it, the people, through their legislature, will take the matter into their own hands. Our people should have, and in some way are going to have, adequate medical attention, and we, therefore, recommend that the House of Delegates take some action in this matter.

2. As a result of the Eighteenth Amendment to the Constitution of the United States and the Volstead Act, certain members of the medical profession have taken the place of "bar-keepers." This has done more to undermine the respect and honor that the public formerly had for our profession that anything else. The House of Delegates should go on record as being in favor of living up to not only the letter, but the spirit of this act, so long as it is a part of the fundamental law of the land. It should not only frown on, but absolutely repudiate prescription writing for gain, for accommodation of friends or for self-consumption. The matter has come to such a point that many people consider that the only difference between the doctor and the old time saloon keeper is that the former demands a higher price for a liquor of an inferior quality. We believe that the House should take an emphatic stand against this undignified, unethical and unlawful breach of trust.

3. The House of Delegates at the special meeting in February showed by its unanimous action that organized medicine stood united in support of the State Board of Health as at present organized. We feel that to further emphasize this and keep the knowledge of it before the people, again before this regular annual meeting, the council's statement and stand with reference to this matter should be unqualifiedly endorsed.

4. We recommend a continuation of the diagnostic clinics and that the House give a vote of thanks and approval to the Crippled Children's Commission and its leader, Miss Marian Williamson.

5. We regret the action that resulted in the disruption of the Bureau of Maternal and Child Welfare and believe the House should devise a plan of keeping this matter before the public so that the mistake can be corrected by the next legislature.

6. The House of Delegates should continue the appropriation of $200 a month for expenses for organization work from the Secretary's office as recommended by the Council.

We have only touched on the most salient features of this report. Its comprehensiveness is such that hours could be consumed in considering all the matter included in it. We hope that all delegates have studied it and will bring to the attention of the House anything that they think should have special consideration which from lack of time we failed to mention.

S. C. SMITH, Ashland: I move the report be accepted.

The motion was seconded and carried.

PRESIDENT ESTILL: I have here the Report of the Committee on Hospital Standardization, of which Dr. J. Garland Sherrill, of Louisville, is Chairman. The Secretary will read the report.

SECRETARY McCORMACK: "The efforts of the American College of Surgeons to effect standardization of hospitals in this country began in 1917 and remarkable results have been shown in this state as well as throughout the nation. Institutions which were no more than nursing homes have become first-class hospitals.

"More recently the American Medical Association has undertaken a similar work, cooperating in part with the College of Surgeons, particularly along the line of instruction for internes.

"There are at present sixteen fully accredited hospitals in Kentucky and four others which are conditionally approved. It is recognized that simply meeting the minimum requirements of the College by no means completes the full development of hospital efficiency. Each hospital must strive by painstaking effort upon the part of its management and its medical staff to improve the equipment and the quality of the work done in the institution.

"In Louisville, at the suggestion of the Chairman of your Committee, there has been formed a Joint Hospital Committee which meets four times a year and discusses measures looking to improvement of efficiency in hospitals of the city, the effort being to work in unison to give the best service to the sick. These measures include the prevention of unnecessary surgical or medical attention, the lessening of the patient's stay in the hospital when it is clearly not to his advantage, and also a careful Social Service for supervision of the charity service so that deserving cases receive proper care, while the abuse of the free clinic is prevented.

"A marked effort has been and is made to eradicate fee-splitting and all the evils incident to this practice. At present there is a movement to close the doors of hospitals to untrained operators who recognize their own deficiencies and depend upon a better equipped man to do the operation while they pose as the surgeon in the case. When this is the habitual practice both men should be barred. This is one of the worst types of fee-splitting, which bids fair shortly to be controlled. Most hospitals in the state have the signatures of both active and associate members of the staff declaring against fee-splitting and other forms of harmful practice, and failure to keep this pledge will remove the offender from the list of those eligible to bring patients into the hospitals.

"The hospitals of the state are in position to properly estimate the training, the surgical ability, and the judgment of one who aspires to surgical work. They have the right to exclude from the wards undesirable men, fortunately a limited number, fee-splitters, abortionists, and those habitually addicted to drug or liquor habit. Moreover, it is the duty of the hospital authorities and the profession to clearly make this differentiation.

"Some questions yet remain for clarification, such as the duty of the hospital to the resident physicians and to the student nurses. Both of these problems will come to solution in the near future.

"Better interne and nursing service will cause greater efficiency in all hospitals.

"The greatest lack in all our institutions is the absence of the scientific spirit or desire to know. Every advance in medicine, or other science, results from this desire or what may be termed scientific curiosity. The study of interesting cases in the hospital always benefits the members of the staff, errors are avoided, and better results are obtained. As a part of this study the most important means of final determination of the cause of the disease and of the death, as well as the entire pathological picture, is the postmortem examination. Every hospital is urged to impress upon its staff and upon its clientele the necessity of increasing the proportion of autopsies. By increasing the percentage of necropsies the number of deaths will be decreased. Emphasis must also be placed upon the necessity for the importance of staff conferences to keep the hospital up to grade.

"J. M. Salmon,
R. Lee Bird,
J. H. Blackburn,
J. Garland Sherrill, Chairman.

"It is recommended that any hospital failing to fulfill these requirements shall not be officially recognized."

Mr. President, in presenting this report and moving its adoption, I desire to call attention to things which have been overlooked. First is a statutory law penalizing and making a misdemeanor of fee-splitting. The sale of patients is absolutely prohibited by law in Kentucky, and, regardless of our personal views on the subject, I believe we are a law-abiding profession and should comply with that law.

In the second place, every member of the Kentucky State Medical Association, under the By-Laws, has assumed a definite pledge, the same pledge that is required of the American College of Surgeons, against fee-splitting, and pledged themselves that they will not take part in fee-splitting at either end of the splitting, that they will not be participants in any way in the matter.

These two sections of the law seem to have been forgotten in some sections, according to reports that we have been receiving recently, and I think it is very important that the profession at large have their attention again called to this very important matter.

I move the adoption of the report.

The motion was seconded and carried.

PRESIDENT ESTILL: Dr. McChord, have you a report on the Committee on Constitution and By-Laws?

R. C. McCHORD: I have no report. I have investigated this thing on several occasions. As I have said before, the suggested Constitution and By-Laws of the American Medical Association, suggested for adoption by all the state societies, is simply a copy of our By-Laws and Constitution, with very little change in it. I think it is very well to let our Constitution and By-Laws alone, as they comply in every respect with the American Medical Association Constitution and By-Laws, which is practically a copy of our Constitution and By-Laws.

SECRETARY McCORMACK: I feel sure that Dr. McChord's views on that subject are the cause of his being continued as Chairman of this Committee from year to year.

I have here the Report of the Committee on Health Problems in Education, of which Dr. E. B. Bradley, of Lexington, is Chairman:

"We take this to mean essentially health problems in the public schools, as for the purposes of this report health activities in the colleges and universities offer small difficulties.

"This committee was informed of its appointment too late to gather statistics regarding just what has been accomplished in this regard and will content itself with the recommendations of what the ideal county health unit should strive to accomplish. (Acknowledgment is made to Dr. Floyd P. Allen, Health Officer of Fayette County, for this outline.)

"Its activities should include:

"1. Communicable disease control.

"2. Medical inspection of school children.

"3. Co-operation in health instruction.

"4. Sanitation of school buildings and grounds.

"1. Communicable disease control divides itself into two parts: First, prevention through immunizing agents and, second, isolation or quarantine of contagious disease. Of immunizing treatments, smallpox vaccination stands preeminent and should be required before allowing pupils to attend school. A toxin-antitoxin campaign for the prevention of diphtheria when successful will eventually stamp out this disease. Typhoid and scarlet-fever immunizations are highly desirable but not so necessary as the first two. That cases of contagious disease should be quarantined goes without saying.

"2. Medical inspection of school children can be effective only in those counties that have a nurse to follow up such cases. Unless this is done few of the defects found will be corrected. Of these defects, underweight, bad tonsils, poor teeth, and visual defects are the commonest. Most parents are not interested in getting the defects of their children corrected and this alone means that co-operation of teachers, parents and the public with the physician must be secured. There can be no success in school health campaigns except thrugh the education of the public in every county. Just how this is to be done is too big a subject to deal with at this time.

"3. Co-operation in health instruction. The knowledge of health matters possessed by grade pupils is certainly very small. This is necessarily the case as the hygiene course as ordinarily taught is out of date. Emphasis should be placed on those things which have a bearing on the knowledge and practice of proper health habits. A survey made recently in one of our counties among pupils of the fifth, sixth, seventh and eighth grades showed a woeful ignorance on these subjects. If possible, this society should co-operate with the state department of education in order that the proper text-books on health subjects should be used in our public schools. The normal schools should give the teachers a better foundation in these matters, as it is evident that teachers cannot give proper instruction in matters of which they are almost totally ignorant.

"4. Sanitation of school buildings and grounds. Except for inspection of the water supply and the installation of proper sanitary toilets the schools should offer little difficulty in this regard.

"From the foregoing report it must seem evident that until every county has a county health unit with a full-time health officer or its equivalent, little can be accomplished. It, therefore, goes without saying that this society must not cease striving for this accomplishment. The education of the public in health matters is necessary before the proper financial assistance will be given. Just how this is to be accomplished we leave to this society."

I move the adoption of the report, Mr. Chairman.

The motion was seconded and carried.

PRESIDENT ESTILL: Is there any new business to come before the meeting tonight?

J. A. STUCKY, Lexington: Mr. President, I should like to present a little matter which I think very important, and I want to present it tonight for two or three reasons. First, I have just gotten the information in the last hour or two, and I must return it tomorrow.

Some of you know that eight or ten years ago, Dr. John McMullen and I, in fighting the trachoma problem, tried very hard to get research work done in Kentucky to ascertain the specific cause of this scourge.

The Rockefeller Foundation, at different times, came to encourage us a little. Noguchi, who recently gave his life in learning something about yellow-fever, has done more than anybody else to ascertain the cause of trachoma, but he didn't quite find it. His assistant, Dr. Proctor, of Santa Fe, New Mexice, has written us; Dr. Lindner, of Vienna, has written us, all urging the advisability of having a station in Kentucky similar to the one that they have in the West in New Mexico, whereby this assistant can go from station to station, spending two or three months several times a year, looking up and studying the fresh cases.

The United States Bureau of Public Health, which has been Kentucky's big brother and great friend, is anxious now that we shall take up that work, and we are considering ways to do that.

I want to offer this resolution tonight, and ask that a committee be appointed to look into this proposition and report back to the House of Delegates. The resolution that I want to offer is this:

That we go on record as seconding the desire of the United States Public Health Service, Trachoma Department, to maintain a laboratory and research work in close connection with the McDowell Trachoma Hospital; and furthermore that there be created in the Kentucky Medical Association a committee with power to act, in carrying out the above desires of the United States Public Health Service, Trachoma Department.

I move that resolution be adopted.

The motion was seconded by Dr. Vance and carried.

PRESIDENT ESTILL: Is there any other

business to come before the meeting tonight? If not, we stand adjourned.

The meeting adjourned at eight twenty, to reconvene at seven o'clock on Wednesday evening, September 12.

THIRD SESSION, WEDNESDAY EVENING, SEPTEMBER 12.

The third session of the House of Delegates was called to order at seven-thirty, President Blackburn presiding.

PRESIDENT BLACKBURN: We will have the roll call, Mr. Secretary.

The Secretary called the roll.

PRESIDENT BLACKBURN: Report of the Committee on County Hospitals, Dr. C. C. Howard, of Glasgow.

C. C. HOWARD, Glasgow: In regard to County and Community Hospitals, quite a few men wrote me and asked me as to exactly how we got hold of the money to be building a hospital down in Barren County. We had an organization there taking subscriptions to build a community hospital. In some way, someone saw in some journal that the Commonwealth Fund of New York was going to aid rural communities all over the United States in different places if they were found worthy. We answered that two or three years ago. That is part of the Harkness estate. I think they have about thirty million dollars and the Commonwealth Fund is spending that money after making investigations. We made application and kept in touch with them . We had a man come down quite often, and finally we were awarded the second hospital in the United States. The first one was awarded in Virginia.

They are erecting an institution for us now. We have to pay one-third of it. They pay two-thirds of it and equip it, and we elect our own directors. They turn it over to our management. We are building a hospital costing $210,000.

Of course, I know that can't be done all over the state, and I know there are a great many counties that need community hospitals. While we were working on this project, we knew that the financing and maintaining of the hospital would be the biggest problem, so in conjunction with some of our legal minds we framed a bill, and it passed two years ago in the legislature, which gave us a right through the County Health Board to ask the Fiscal Court to put in the budget a certain per cent (I have forgotten the percentage, anyway it pays about seven thousand in our county), to the maintaining and taking care of our charity, so that will help, and adjoining counties do likewise.

As Chairman on the county hospital proposition, I met with Dr. Hume, who is very much interested in it, and I should like to read this report and have you discuss it a little.

The committee wishes to make the following suggestions for your consideration:

1. The time has arrived for each and every community to adequately care for the major part of its sick.

2. How best to do this to restore health, more quickly protect the family or community from any possible infection, in the most economic and practical way.

3. Good roads, with a willingness on the part of the rural people, make it possible to expect the Community Hospital to be the next great movement in caring for the sick.

4. We now have a law which gives each County Health Board, having a city of fifth class, authority to request the Fiscal Court to put in its budget a certain per cent of its levy to maintain its charity, if the county has a hospital.

5. This committee knows full well the big problem is the raising of funds to erect such institutions.

6. We wish to suggest that the present law just spoken of be amended in regard to financing the erecting of community hospitals by any county or group of counties, the details of amendment to be worked out by a committee and our legal adviser.

The idea was that we could work out and have this present law amended, so that it would apply not only to cities of the fifth class, but to other counties or groups of counties, and you could do that with their levy or with bonds.

SECRETARY McCORMACK: I move the adoption of the report.

The motion was seconded and carried.

PRESIDENT BLACKBURN: We have the report of the Committee on Post-Graduate Instruction.

SECRETARY McCORMACK: The Committee on Post-Graduate Instruction desires to make the following report:

"A Post-Graduate course was conducted at the Louisville City Hospital for two weeks, beginning July 9th. The enrollemnt was ninety-one. The great majority came from Kentucky, though there was one from Texas, one from Florida and several from Illinois, Indiana and Ohio. The attendance far exceeded our expectations and practically every hour was filled according to program.

"The Committee wishes to express its thanks and appreciation to Doctors McCormack and Blackerby for their assistance in arranging and perfecting the schedule and also to Miss Runner and Miss Sullivan for their aid in taking care of the visiting doctors.

Finally, we are deeply indebted to the more than sixty doctors of Louisville and throughout the state who so faithfully and capably did the work of the schedule and who so cheerfully co-operated in every way to make the course an outstanding success.

"The expenses incurred in the publicity campaign and otherwise were paid out of the budget of the Kentucky State Medical Society and the fees received for tuition were accordingly turned over to the Kentucky State Medical Society. These items practically balanced each other.

"The Committee recommends that such a course be given each year.

"Respectfully submitted,
"Phillip F. Barbour, Chairman,
"G. A. Hendon,
"Ed. Grant."

S. C. SMITH, Ashland: I move it be received and filed.

The motion was seconded and carried.

PRESIDENT BLACKBURN: What about the recommendation?

VIRGIL E. SIMPSON: As a Louisville representative, I think I am speaking the feeling of the men who are in Louisville and who, of course, are expected, probably, to do the major portion of the work during such post-graduate instruction. I think they would like to know what the feeling of the House of Delegates is as to the continuation of such a course. I think it would be well for the delegates to go on record as to what they desire and not wait until three or four months from now and then have the few individuals who may or may not occupy official positions in the Society to decide that such a course be held. We feel we would rather know just what the feeling of the state profession at large is with regard to the continuation of such a course.

I believe that the men in Louisville are in accord with the idea that if such a course is desired and if it is felt that it is sufficiently helpful for its continuation, that we are entirely willing and glad to co-operate with the State Association in any way that we may be able to do so.

S. C. SMITH, Ashland: There was one doctor from Ashland, Boyd County, who took this course, and came back full of praise and said it was the best course he had ever had, although he had taken previous courses in Chicago and New York, and other places. With that recommendation from him, I feel that it would be worth while to continue this course from year to year.

L. S. HAYES, Louisa: As one of the doctors who attended that course, that was the unanimous opinion of all the men who attended.

We went on record to the effect (I don't think there was a dissenting voice) that it was very much worth while. There was one suggestion that it be divided so that the men interested in certain sections could take them at times and not have to take all of them, but take the things in which they were most interested.

SECRETARY McCORMACK: The course this year was held in accordance with the unanimous instruction of the House of Delegates at the session last year. The Committee was organized with Dr. Barbour as Chairman, and the instructions were carried out, as, of course, all your instructions are. On the day of the conclusion of the session, Dr. Barbour asked for a meeting of the class, at which all the students were present. The student body (with ninety-one signatures) requested that the course be continued, so they expect to have a very much larger number present at future courses, because, of course, it would be better advertised and it would be built up to a bigger and better thing.

As Dr. Hayes said, practically every man present took part in the discussion. It was a constructive discussion, with suggestions to Dr. Barbour as to the conduct of the course in the future, and he said he would take up with the various members of the staff and work out the several plans that were suggested, so as to make it even more desirable than it was this year.

Since the doctors have been back home, we have had letters at the office from something more than twelve of them in which they have made otaher constructive suggestions that have been referred to Dr. Barbour for future reference.

PRESIDENT BLACKBURN: Is there further discussion? Do I hear a motion regarding this matter? The Committee recommends that such a course be given each year.

L. S. HAYES, Louisa: I move that that recommendation be accepted.

S. C. SMITH, Ashland: I should like to know what the provisions are and what the tuition is.

SECRETARY McCORMACK: This year it was a dollar. There was just a dollar registration fee. The request of the members of the body was that certain other courses be arranged, some of them for a small number of students. It would require a little larger fee to arrange some of those courses over a term of two or three weeks. The arrangements for that can be worked out so that it will be entirely satisfactory, but the fee will be nominal.

PRESIDENT BLACKBURN: I might say, Dr. Smith, that I went up there and registered, paid a dollar, and got seventy-five cents worth of certificate back in the mail.

J. G. FOLEY, Pineville: The worst objection we have is that it is so everlastingly hot in Louisville in July.

SECRETARY McCORMACK: We'll be glad to meet in your mountains any time.

The motion was carried.

PRESIDENT BLACKBURN: Report of the Committee on Medical Ethics, H. V. Johnson, of Georgetown:

H. V. JOHNSON: Mr. President, Gentlemen of the Society: It is well in this modern age of hustle and hurry and things scientific, to pause occasionally and take stock of ourselves and our surroundings. We seem to have heard somewhere in the dim past something of medical ethics, but so little is heard of it these days that it seems as though it may, perhaps, have been thrown in the discard. Is it that our profession has become so imbued with the ethical side that it is taken as a matter of course and nothing is said of it? I hope the latter is the case, but even so, it is well to take up the rule book occasionally and glance through its pages, if for no other reason that to prove to ourselves that we are playing the game "according to Hoyle."

Briefly, medical ethics may be defined as the rules of conduct that govern a man when he enters the profession of medicine, not only as to himself, but toward other members of the profession and to the community at large.

Medical ethics is based largely on the principle of the Golden Rule and the man who keeps that idea as his guiding star will rarely get off the chosen path or lose the regard and esteem of his brother physician, his patients or his community. In addition to our duty to our patients and our fellow practitioners we owe a higher duty to our community in co-operating with the proper health authorities and lending our time, brains and influence toward preventing epidemics and the proper administration of the health laws of our state. When we see that a vicious health law is about to be enacted that would work a hardship on generations yet unborn, it is our duty, because of our knowledge and training, to inform the public what the result of such an act would be. The gratitude of an enlightened public is our just reward for such an unselfish action.

We have an honorable profession to uphold and it is the duty of all its members to deport themselves so that our position may be upheld and no scorn or ridicule thrown in our way. Hippocrates it was, who said that a physician should be sober, modest and prompt to do his duty, conducting himself with propriety in all the actions of his life.

The high position may only be maintained by safeguarding our members and excluding from our ranks those whom we know to be unfit either mentally or morally for admission to our fraternity.

C. G. DOUGHERTY, Paris: I move the report be accepted as read.

The motion was seconded and carried.

PRESIDENT BLACKBURN: I will ask Dr. E. E. Horine to read the report of the Heart Committee.

E. E. HORINE, Louisville: This is the report of the Heart Committee of the Kentucky State Medical Association for 1928:

Further study of the prevalence of heart disease by your Committee serves to indicate conclusively that an ever increasing number of deaths are cardiac. The incidence of heart disease among high-pressure workers and especially among medical men has definitely increased. The Committee suggests that physicians remember to take a certain amount of time from their daily routine for rest, play and relaxation with an occasional short vacation in addition. The old adage which begins with "All work and no play" is particularly apropos.

Your Committee believes that the advisability of periodic health examinations in an endeavor to discover heart disease in its incipiency needs especial emphasis. A great many individuals by harboring foci of infection, by unhygeinic living or by failure to keep physically fit are potential cardiac cases. Therefore the annual physical examination will undoubtedly be of definite value in the fight against heart disease.

Members of the Heart Committee, when requested, will gladly attend any County Society meeting for the purpose of discussing the heart problem and heart disease in general. The Committee is particularly desirous of attempting to disseminate the newer knowledge of heart disease as widely as possible.

Several articles have been prepared for publication in the Kentucky Medical Journal. In these papers all aspects of heart disease will be considered. Possibly after publication in the Journal it may be feasible to issue the series in book form.

Respectfully submitted,
Austin Bell, Hopkinsville,
J. W. Kincaid, Ashland,
Walter Byrne, Jr., Russellville,
John W. Scott, Lexington,
C. Z. Jackson, Arlington,
J. R. Morrison, Louisville,
W. L. Tyler, Owensboro,
C. Youtsey, Newport,

Silas Griffin, Henderson,
Ernest R. Goodloe, Paducah,
Emmett F. Horine, Louisville,
Chairman.

SECRETARY McCORMACK: I move the adoption of the report.

The motion was seconded and carried.

PRESIDENT BLACKBURN: Report of the Committee on Military Medicine by Dr. Smith, of Ashland:

S. C. SMITH, Ashland: Your committee came here without a full knowledge of their duties. After inquiring, we found there were two main phases of the subject that we were supposed to bring up and offer for your consideration. One of them is that we feel the young men in the medical profession should be urged to enlist in the Medical Corps so that they will receive proper training to serve their country in time of need. Many of us who went in the army in 1917-1918 were very much in lack of the rudimentary knowledge of military medicine, and if we had had the training that these young men can get, we would not have felt this lack of training.

Another feature of what might be called military medicine is the examining of the applicants for the Citizens' Military Training Camp. I know that many of the physicians throughout the state have been giving of their services for this work. You are requested, of course, by the War Department to do these examinations without any remuneration. A number of us in Boyd County have been carrying on this work for a number of years.

Another phase of the report has to do with examinations of applicants for compensation, that is, the disabled veteran who has not yet received compensation for disabilities incurred while in the military service during the World War.

Through an act of the last Congress, we secured a postponement of the final time for filing these claims. A number of these men, who were discharged without any knowledge of their rights and lived in remote sections, have not yet applied for compensation. Many of them are deserving cases. Unfortunately, some of those fellows were discharged under conditions somewhat similar to this: They were sent up before a medical officer or group of medical officers, as the case might have been, for examination for discharge. Many of these young men were suffering from some disability at the time, but were extremely anxious to get home, and after expressing their desire to be allowed to go on home, the examining surgeon failed to make any note whatever of their disability and they were allowed to go, and those fellows will have quite a difficult time in proving the military connection of their disability. I know of more than one such case at this time.

These examinations that you have seen and will be requested to make are for the purpose of getting these men before a regional office of the Veterans Bureau for examination. The Veterans Bureau has made repeated complaints about the type of examination or report that comes in. They desire certain well-known facts on these reports. They want the weight and the age and general physical appearance, the blood pressure, urine examination, and special heart examination, special chest examination, and in reporting the findings they want every symptom, with the location of rales and murmurs, and so forth; they want a temperature record, in fact every detail of general physical examination that would enable them to determine from this report whether or not this man is in such a condition that it is worth while having him come down for the examination before the bureau.

Unfortunately, in the last two or three years the bureau has become more and more antagonistic, you might say, toward these fellows. When a man goes in for examination now, it seems as though the attitude of the officials in the bureau is that of judge and jury, and the attitude of the applicant is more or less that of an accused offender.

A number of unfortunate things have come up. In one regional office, the chest man one, two or three years ago reported certain individuals as having active tuberculosis, and within the last year these same men have come back and have been examined by the same chest man and have been told that they did not have it and never did have it. That is a very unfortunate occurrence, because the man has been done an injustice at one time or another. When he was told that he did have it, he was sentenced to a life of invalidism. If he didn't have it, of course he will have this thing hanging over him almost the rest of his life. Then for him to come along and be told one, two or three years later that he didn't have it and never did have it, and to have his compensation withdrawn, when he has adjusted himself to the life that he had to live on this compensation that was provided, is not fair.

I feel that the profession throughout the state can be of invaluable assistance to these unfortunate men, and, of course, we know that you will use your judgment in trying to prevent any unworthy cases from getting before the bureau and thus putting the government to that much unnecessary expense. At the same time, I want to urge that you assist the disabled ex-service man in every way possible.

SECRETARY McCORMACK: We have with us at this session, Dr. W. W. Anderson, former president of this Association, and Dr. Dunham, of Cincinnati, who is in the diagnostic center, and also Dr. Miller, formerly of Adair County, now of Louisville, who occupies the same position in Louisville. I move that they be invited to appear before the House of Delegates following the election in the morning, and discuss the problems that confront them that would be of value to the profession of the state. I think that discussion published in the Journal would be of a great deal of interest to our physicians.

Recently, I was in the Veterans Bureau in Washington, talking to the chief surgeon, and he said they were having a great deal of difficulty in getting their blanks filled out at all, now. That is partially due to a critical attitude on the part of the central office, and the sending of things back so frequently for revision. It is partially due to our failure to fill them out properly the first time, and I believe a frank discussion of the matter will be of a great deal of value to the profession, not only in the House of Delegates, but in the state.

I make that in the form of a motion.

The motion was seconded by Dr. Scott and carried.

PRESIDENT BLACKBURN: Under new business, we will hear the report of the Special Committee on Trachoma.

J. A. STUCKY: The Committee met, with the Advisory Committee, to consider the trachoma problem. I want to say, if I may, briefly, and with a bit of feeling, something I said to the Committee. A crisis confronts us, a crisis in the form of a psychological opportunity. Noguchi, who started the investigation and pushed it to the extent almost of certainty, is dead. His work is unfinished. There are more genuine trachoma cases in the state of Kentucky than any other state in the United States. It is said that more than 40,000 cases of trachoma have been treated and relieved. There are still other cases. The problem of the specific cause of this treacherous, damnable, malicious disease of the eye, is unknown, unsettled.

We have in Richmond the best equipped trachoma hospital in the country. The State Medical Society is in session here, and now we have the opportunity of continuing on these grounds or on the grounds owned by the Kentucky State Medical Association, the marvelous research work started by Noguchi. Personally, feeling as I do feel about that matter, and having pled for ten or fifteen years that we do something radical in the way of research work, I feel, gentlemen, that the time is now, and if we jump at this opportunity and show the scientific world, the medical profession, our interest in this matter, the problem is going to be solved right here in Richmond, and it will start this year.

With that statement, this is the report of the Committee:

Whereas, in the United States the scientific research into the etiology of trachoma has not kept pace with the progress maintained by the United States Public Health Service in the curative treatment of the disease and its end results, and

Whereas, the recent cessation of Dr. Noguchi's research work into trachoma is a challenge to scientists to take up this work of his and complete it, therefore

The Kentucky Medical Association hereby pledges itself to cooperate to the limit with the trachoma section of the United States Public Health Service in pushing its efforts to find out the specific cause of this destructive eye disease, trachoma, and also hereby respectfully urges that in Kentucky, in which is still found the largest number of active cases, the United States Public Health Service establish and maintain a research laboratory in connection with its Trachoma Hospital at Richmond.

Furthermore, that this committee of the Kentucky Medical Association is hereby authorized to act towards such cooperation with the United States Public Health Service.

PRESIDENT BLACKBURN: You have heard the report of the Special Committee on Trachoma. What is your wish?

LOUIS FRANK, Louisville: Does that carry with it a provision for an appropriation necessary for the research laboratories?

J. A. STUCKY: It does not. We are to cooperate with them and find out what they want. There is no question of finances mentioned in it at all.

LOUIS FRANK: The resolution says "to act." It may be that before another meeting of the House of Delegates, if the United States Government desires to establish a research laboratory here, there will be a certain proportion of funds required.

SECRETARY McCORMACK: The Council is required to act in the intervals between meetings, in such cases.

JOHN W. SCOTT, Lexington: As I understand this, it is simply a desire for expression on the part of this body in approving this work and authorizing this Committee to proceed to endeavor to have the United States Government establish this laboratory here, at no expense whatever to this Association. If the Association sees fit later to devote funds to it, that is something to be developed in the future and is not contemplated at present at all.

PRESIDENT BLACKBURN: I think the House of Delegates understands clearly the import of this resolution. Do I hear a motion?

LOUIS FRANK, Louisville: I move the adoption of the resolution.

The motion was seconded by Dr. Pritchett and unanimously carried.

PRESIDENT BLACKBURN: Is there any other new business to come before the House at this time? If not, we stand adjourned.

The meeting adjourned at seven-fifty o'clock.

Fourth Session, Thursday Morning September 13.

The fourth session of the House of Delegates was called to order at nine o'clock, President Blackburn presiding.

The Secretary called the roll.

PRESIDENT BLACKBURN: The roll call shows at this time sixty-three members of the House of Delegates present.

The first order of business this morning is the election of officers. At this time the nominations for President-Elect are in order.

D. M. GRIFFITH, Owensboro: I want to nominate a doctor who has always stood true to every need of the profession, one who I am sure will meet every measure of ability demanded from the office, one who has a national as well as state reputation, one whom the doctors of Kentucky love as well as admire. He has the bravery of a bandit, the manners of a Chesterfield, remarkable courage and I am sure, if elected, in functioning as President, will have the wisdom of a Solomon.

I nominate for the office of President-Elect Dr. Granville Hanes of Louisville.

PRESIDENT BLACKBURN: The name of Dr. Granville Hanes has been placed in nomination.

W. M. MARTIN, Harlan: I second the nomination and move that the nominations be closed.

J. W. KINCAID, Ashland: There were two motions made at one time and I move that we do not put the motion.

PRESIDENT BLACKBURN: The Chair will rule that Dr. Martin will only second the nomination; we will not hear the motion at this time to close nominations.

GEORGE A. HENDON, Louisville: I take a great deal of pleasure in seconding the nomination of Dr. Hanes, on account of the fact that I think we all feel that this honor is richly deserved and is amply merited by Dr. Hanes. It has been honestly earned in more ways than one, not only by reason of his professional achievement by reason of the fact that he has done as much as any doctor, who has ever lived in Kentucky to place the State on the national roll of honor and fame, but that his achievements in his chosen field have attracted the attention of thoughtful and scientific men throughout the length and breadth of the nation, and such achievements as that should be recognized by his fellows in order to stimulate an emulation on the part of the rising generation to strive to put forth effort to reach the same altitudes.

I think we owe this recognition to men who have been able to accomplish the things that Dr. Hanes has accomplished and, in this way, pass on the stimulus so that progress may be unimpeded.

Dr. Hanes has graciously deported himself on former occasions and has always objected and always refused to place his own ambitions where they would be in the least a hindrance to the ambitions of other men of the profession, and I wish in seconding his nomination, to bring forward those things as arguments and as pleas in behalf of his election.

W. B. McCLURE, Lexington: Mr. Chairman, I desire also to second the nomination of Dr. Hanes and I hope that his election will be made unanimous. He is eminently qualified and fitted in every way for the position. I have attempted, in the past, to help to place this crown upon Dr. Hanes' head and I hope that he will receive it now. (Applause)

PRESIDENT BLACKBURN: Are there any other nominations for the place of President-Elect?

If not, the nominations are closed.

W. B. McCLURE: I move that the Secretary be instructed to cast one ballot.

The motion was seconded and carried.

SECRETARY McCORMACK: Mr. President, I cast this ballot for Dr. Hanes for President.

LOUIS FRANK, Louisville: I move that Dr. Hendon and Dr. McClure be appointed as a committee of two to escort the President Elect to the meeting.

Seconded and carried.

PRESIDENT BLACKBURN: Gentlemen, the next in order is the election of Vice-Presidents.

S. C. SMITH, Ashland: I wish to place in nomination for Vice President a man who has devoted a great deal of his life to the promotion of his own county society and a man who has taken a great deal of interest in the State Medical Association; a man who has, through his service and experience, become eminently qualified for this position; a man who is a personal friend of mine and a man who hails from the County of Clay.

I wish to place in nomination J. L. Anderson of Manchester.

L. H. SOUTH, Louisville: I second the nomination.

T. ATCHISON FRAZIER, Marion: Up in the hills of Kentucky, in the southern part, among those beautiful mountains, there is a little town of Pineville—one of the most beautiful spots in the State of Kentucky. When you go up into that little city, you are surrounded by these beautiful mountains and hills; that country, gentlemen, is the home of many notable men. It is the home of poets, lawyers, judges and doctors and beautiful women, and I want to place in nomination as Second Vice-President Dr. Edward Wilson of Pineville. (Applause)

PRESIDENT BLACKBURN: The name of Dr. Wilson of Pineville has been placed in nomination as a Vice-President.

SECRETARY McCORMACK: I suggest that as we have two from Eastern Kentucky, we ought to have another from Western Kentucky, so they will be distributed geographically, and not a delegate.

C. C. HOWARD, Glasgow: I should like to put in nomination Dr. Austin Bell of Hopkins as Third Vice President.

SECRETARY McCORMACK: He is a delegate.

C. A. VANCE, Lexington: I am not from Western Kentucky, but I have friends down there and I should like to nominate Dr. Flint Finley of Madisonville for Vice President.

D. Y. KEITH, Louisville: I should like to second the nomination of Dr. Finley.

SECRETARY McCORMACK: Having three nominations, I will pause, if somebody wants to nominate somebody else; if not, I move that the Secretary cast one ballot for the three positions.

The motion was seconded and carried.

SECRETARY McCORMACK: I cast the ballot for Vice Presidents Wilson, Finley and Anderson.

PRESIDENT BLACKBURN: Next is the office of Secretary, this being an election for a period of five years.

Nominations are in order for the office of Secretary for the ensuing period of five years.

WILLIAM E. APPLEHAUS, Louisville: Mr. President, I nominate Dr. A. T. McCormack.

The nomination was seconded by Dr. Frazier and several others.

C. G. DOUGHERTY: I move that the nominations be closed and the President be instructed to cast one ballot for Dr. McCormack.

The motion was seconded and carried unanimously. (Cries of "Speech")

SECRETARY McCORMACK: That is the nicest coming of age day present that was ever handed anybody. I have had the very great privilege of serving as your secretary twenty-one years today.

Mr. President and Gentlemen: In accepting this position again, I do it with a very serious sense of responsibility—my responsibility and yours. Our whole system in Kentucky is under fire. Through these years our profession, and we as its representatives, have been charged by the people of the commonwealth with a responsibility for the medical care and public health of our citizenship. This has been done under a careful, systematic legislative policy created by those of our honored dead who builded this organization. That it has won the confidence of the people has been demonstrated over and over and over again.

From time to time, both without our ranks and within them, there arise those who feel that the system is wrong and who are willing to assume the responsibility for its amendment, or destruction. Whenever some man comes forward with a constructive program that is better than that which has reduced the death rate in Kentucky sixty-six and two-thirds per cent since nineteen hundred; whenever a man comes forward who will help better with his plan to solve the complex problems of modern medical education; when some man comes who, with the voice of those leaders who have gone, can again make our hills and valleys resound with the words of leadership that will come from him and he has a better plan than that which they built, I know that the medical profession of Kentucky and its people will be ready to follow that wise leadership. But, until then and as long as this plan is working, I want to appeal again—an unnecessary appeal to you, but one that should be constantly made to the members of the House of Delegates—that, as you go back home, you go to your societies and there help to create that harmony that will continue to command public confidence and will carefully mature plans to make this organization and its leadership effective in every respect in which it is defective.

No one of us who has ever held office, no one of your presidents or any others, has failed to realize both his responsibilities and his lack of ability to accomplish all those great purposes with which we are charged, and we can only accomplish them and continue to succeed just in proportion as we get the loyal and effective support of every member of the profession.

Division in our ranks will be fatal, because a house divided against itself will fall. Division in our councils is always to be sought, because from the diverse counsels of those devoted to the profession will arise the best plans for us to follow, but, when once adopted, let us all loyally and faithfully, as we have these many years, carry forward the banner of the medical profession and make all the necessary sacrifices for the benefit of the health and lives of the people of our state.

It is this message that I ask each of you to carry back in your hearts and give to your profession and, through your profession, to your people.

I shall soon be arriving at the age where my father felt it was better for him to retire from active participation in the control of medical affairs. I want you to be thinking seriously of that time, because the specialty of public health, the specialty of medical organization cannot be lightly taken up, and, in our sister state of Alabama, only two weeks ago the great State Health Commissioner of that state, who has been the head of the medical organization of Alabama since 1912, and who, before that time, knew he would be for twenty years, and, therefore, studied and prepared himself for it, died suddenly within an hour, and, under a mistaken idea, they were preparing to elect his assistant next year and train him for the position. It is important that the medical profession, which is in absolute control of every single policy and man in official medical position in Kentucky, shall have in mind the continuation of our work. No individual has ever done it; every individual has helped to do it, and that is the reason we have this great organization.

I want to ask that the members of the House of Delegates and of the profession have this matter deeply in mind that we may be prepared always to carry on.

Again, I thank you. I shall try and serve you faithfully. I am entirely at your command. (Applause)

Dr. Granville S. Hanes was escorted to the rostum by Drs. Hendon and McClure.

PRESIDENT BLACKBURN: Gentlemen of the House of Delegates, it is a real genuine pleasure to present to you your new President-Elect, Dr. Hanes.

PRESIDENT-ELECT HANES: Mr. President, Ladies and Gentlemen: It has not been my fortune to have a great many honors conferred upon me, and this one came in an unusual way in that it came before I had my breakfast.

I take my profession rather seriously and I want to tell you this morning that I believe that we are the greatest organization there is in the State of Kentucky, barring political organizations, and I am in this Chair of the President-Elect to work. I never have worked as much in my life as I am going to this year. (Applause)

I will tell you of what it is going to consist, largely, harmony. Gentlemen, a few men, a few individuals, can coordinate their efforts and do more than any man or woman can imagine. From our medical history, we should lead in this country in medical efforts, in medical accomplishments. There is no reason we should not do it. When we have done the one thing, that is coordinate our efforts and work as a unit, there is no medical organization in our country that can excel us.

We are in the habit, ladies and gentlemen, of nursing little prejudices. It has come to us justly. In early life, man had to protect himself. He had to fight his enemies; he had to do everything that he could for self protection, for self preservation.

Now, gentlemen, we have reached the stage in civilization so that we do not have, in order that we may succeed, to protect our person, but we protect our community, we protect our state; our lives have been developed, our civilization has been developed to the extent that we do not have to protect the person as the wild animal does out in the forest, but we protect organizations, we protect communities, and it is then when civilization really begins to march and think.

Thomas Edison has advanced in the past few years and yet has just begun to think, and we are only just in the dark; we are just beginning.

In the next few years no one can predict, no one can say what the morrow's developments will be.

Gentlemen, you can be assured that my first remarks are correct. There is not an organization, there is not a body, there are no people engaged in any efforts in our state or any other state that are equal to ours. None! We tell the people what to eat. Recently we have commenced to tell them to eat calves' liver, that we have thrown away for centuries and centuries. We have told the people what to wear. We tell them how to sleep. We are going to tell them how to live. We have the greatest responsibility of any people living. The profession known as medicine is the greatest organization in the world and we are going to become more important as time marches. There is nobody that can realize or understand how important we are in a community. Suppose the profession of medicine was obliterated. We would have no civilization. We mean more to the world than any other organization in existence, and will continue to mean more. Our importance is going to grow as civilization marches.

Ladies and Gentlemen, I am not, as you already know, an expert on extemporaneous speech making, but I am going to do what I said to you in the beginning. I am going to work, and I am going to work for harmony.

I want to say this: I believe that our teaching in medical colleges is very incorrect in one thing. We are taught to believe what we are told, not to be observers, but only to see the things that we are told. Talent, intellect, wonderful observations are going to waste because we are taught to think in channels and not be independent.

I hope that every man will come to Louisvile—do we have the next meeting in Louisville? I thought it was understood that every third year we did—with a fresh home-made idea, not one he has picked up from somebody else, but one of his own observation. Have your own ideas, bring them to this society and tell the society what you know and what you have done which will be different from that of every other man in our organization.

I want to tell you that no man has ever been elected to the presidency of this great organization who has a keener and higher appreciation of this than I myself, and I thank you again and again. (Applause)

PRESIDENT BLACKBURN: Next is the election of a Treasurer for a period of five years.

SECRETARY McCORMACK: I should like to have the privilege of placing in nomination our Treasurer. He has faithfully served us for twenty-five years. In point of service, he is the oldest officer of any state medical association in the United States.

During these twenty-five years, his accounts have been carefully audited each year and balanced to a penny every single time. (Applause)

Really, as far as we are all concerned as an organization, there his duty ended but his work has never ceased. During the recent session of the General Assembly, no other man did more, and did it more quietly and under less observation or less limelight, than he did in that fight.

During every contest and consideration that has ever come before the association, quietly, modestly, effectively and constructively, he has taken his place amongst us.

I know I say what every one of us thinks when I say that there is no man more beloved by the profession of Kentucky than Dr. W. B. McClure, and I place him in nomination for Treasurer to succeed himself, for a term of five years.

JOHN W. SCOTT, Lexington: In seconding that nomination, I want to second it as a member from Fayette County, Dr. McClure's own County, and to say that the position Dr. McClure occupies in this society is one of great gratification to his fellow-townsmen, who love him and honor him.

T. ATCHISON FRAZIER, Marion: I move the nominations close and Dr. McClure be elected by the Secretary's casting one balloting for the House.

The motion was seconded and carried unanimously.

SECRETARY McCORMACK: I cast the ballot for Treasurer.

W. B. McCLURE: Mr. Chairman, I would not be human did I not feel with deepest gratitude the honor that you have conferred upon me. You owe me nothing. I have tried to do my duty; how well I have done it is for you to say—the money is still in the treasury.

The Secretary, however, I think attempted to cast a reflection upon my age. I want to say to you that notwithstanding the fact that I have served you for twenty-five years, I began very young. (Laughter)

I want to correct another misstatement. He said I was the oldest officer in the service of the profession. There is one other, I don't know whether she is an officer or not, but Miss Sullivan is very much older than I am. (Laughter)

PRESIDENT BLACKBURN: I don't know whether that ought to be in the proceedings or not. (Laughter)

Next is the election of a delegate to the American Medical Association to succeed Dr. Irvin Abell, for a term of two years.

The next meeting is in Portland, Oregon.

R. JULIAN ESTILL: I nominate Dr. Abell to succeed himself.

The nomination was seconded by several delegates.

A motion was regularly made, seconded and carried that the nominations be closed and the Secretary cast the unanimous ballot for Dr. Abell.

SECRETARY McCORMACK: I cast the ballot for Dr. Abell as delegate to the American Medical Association.

PRESIDENT BLACKBURN: Next is the election of an Orator in Surgery.

LOUIS FRANK, Louisville: Mr. Chairman, I should like to place in nomination for Orator in Surgery the name of a surgeon who is not among the youngest in our profession, nor is he among the elder group, yet his work in this state has been of the very greatest benefit to a group which is to make up the future citizenship—this is, among the children. Through his work I think more, probably, has been done for the unfortunate cripples of this state than can be attributed to that o fany other man. He is one of the most modest of men. His name has never been on the front page of the newspapers in connection with his work, and yet he is the moving spirit in it all. He has gone about his efforts quietly, unobstrusively, without any thought of self whatsoever and it gives me the greatest pleasure, though he hails from Louisville, to place in nomination as Orator in Surgery for next year the name of Dr. W. Barnett Owen. (Applause)

WILLIAM E. APPLEHAUS, Louisville: I wish to second the nomination.

W. B. OWEN: Mr. Chairman, I am not a delegate, but I happen to be here.

That is a very great honor that Dr. Frank has suggested for me. At the same time, I have occupied that position on one other occasion before this and it would be very unfair to have it again, though I appreciate it just the same.

PRESIDENT BLACKBURN: I do not know what the custom has been with the Kentucky State Medical regarding a situation of that sort.

J. W. KINCAID: Mr. President, there is not anything in the by-laws that would prevent the election of Dr. Owen. It is a very common thing in public life that men occupying positions of prominence and trust retire to private life, we might say, or at least they lay aside the mantle and cloak of office, and yet their work has been so outstanding in the past and continues to be of such a character while they are high privates in the rear ranks, that their constituency calls on them again to take up the banner where they laid it down, and I feel that that is just what we are doing with Dr. Owen.

It is a recognition of the outstanding work in which he has been engaged for the last four or five years, particularly with reference to the situation of crippled children in the State of Kentucky. His work has been so constructive, it has been so helpful, it has been done so cheerfully that I think the society in honoring him is really honoring itself more than him if it elects him to this position.

SECRETARY McCORMACK: I should like to say that I think this is a wonderful opportunity. I think Dr. Frank, with his usual quickness, has grasped a chance that the profession has, in going out of the ordinary and electing a man for the second time, of emphasizing the fact that it is service that has earned this nomination and that in having given this service and in our recognition of it, as Dr. Kincaid has so well said, we honor our selves far more that we do the recipient of this nomination.

I hope very much that Dr. Owen will be unanimously elected to this position. No other man has ever given more of himself more freely than this great man.

D. M. GRIFFITH, Owensboro: We have had addresses in surgery, many of them magnificent addresses, and they fell short of the mark they should have attained because of the time at which they have been delivered, when people are hungry and tired.

I move you, sir, if it is in order, that this body change its hour of meeting and that that address be placed at night. I have wanted to modify time and again the folly of having the noon-day splendid lecture wasted.

I make that a motion.

J. A. STUCKY: I second that motion.

F. A. FRAZIER: I rise to a point of order. The first motion has not been disposed of.

PRESIDENT BLACKBURN: A motion was made and duly seconded that the nominations be closed and that the Secretary be instructed to cast one ballot for Dr. Barnett Owen as Orator in Surgery.

The motion was carried unanimously.

SECRETARY McCORMACK: I cast the ballot, Mr. President, for Dr. Barnett Owen. (Applause)

D. M. GRIFFITH: I renew my motion.

W. E. GARDNER, Louisville: I should like to have Dr. Griffith amend his motion to include the Oration in Medicine.

D. M. GRIFFITH: I include that.

PRESIDENT BLACKBURN: The motion before the House is that at the next meeting of the Kentucky State Medical Association e Oration in Medicine and the Oration in Surgery be delivered at the evening session.

The motion was seconded and carried unanimously.

PRESIDENT BLACKBURN: Next is the election of an Orator in Medicine.

W. E. GARDNER: If I thought I could make as good a speech without eating breakfast as Dr. Hanes made, I think I would never eat breakfast.

I wish I had the oratory that might be appropriate to present the name of the gentleman I am going to present as our next Orator in Medicine. I wish to present the name of Dr. E. L. Gowdy, who represents an outstanding type of country practice and who is highly qualified and capable of delivering a valuable address at our session next year.

PRESIDENT BLACKBURN: The name of Dr. E. L. Gowdy of Campbellsville is before the House.

T. A. FRAZIER, Marion: I second that nomination.

W. E. GARDNER, Louisville: I move the nominations be closed and the Secretary cast the ballot of the House for Dr. Gowdy as Orator in Medicine.

The motion was seconded ana carried unanimously.

SECRETARY McCORMACK: I herewith cast the ballot, Mr. President.

PRESIDENT BLACKBURN: The term of office of the Councilor of the First District, of which Dr. V. A. Stilley of Benton is the present Councilor, has expired.

F. A. FRAZIER: It has always been my policy when we had a good man who was willing to work, to continue to work him.

The First District is down where we are all Democrats and all dry, down where they grow dark tobacco and corn, and recently began to grow cotton, down where we raise fine cattle and hogs, and have the most beautiful women on the face of the earth.

I want to vouch for Dr. Stilley being the best judge of a pretty woman of any man of his age in the State of Kentucky.

As he has served us so well and is willing to serve us again, I want to place in nomination Dr. V. A. Stilley for Councilor of the First District.

The nomination was seconded.

JOHN W. SCOTT, Lexington: I move the nomination be closed and the Secretary be instructed to cast one ballot for Dr. Stilley as Councilor of the First District.

The motion was seconded and carried.

The Secretary cast the ballot.

PRESIDENT BLACKBURN: What about the Ninth District? That expires this year. Dr. W. L. Gambill of Ashland is the incumbent in the Ninth District.

H. T. SPARKS, Olive Hill: I wish to place in nomination the name of Dr. Smith of Ashland.

The nomination was seconded.

PRESIDENT BLACKBURN: Dr. Smith of Ashland has been nominated. Is there any other name?

A motion was regularly made, seconded and carried that the nominations be closed and that the Secretary be instructed to cast one ballot for Dr. Smith of Ashland as Councilor for the Ninth District.

The Secretary cast the ballot.

PRESIDENT BLACKBURN: The place of meeting is the next order of business.

SECRETARY McCORMACK: Under the by-laws we meet in Louisville every third year.

You will recall that the Owensboro meeting was held in Louisville and, in return for that, the Louisville meeting was held in Owensboro last year.

Under the rules, the next meeting will be held in Western Kentucky. Of course, that is a matter within the control of the House.

LOUIS FRANK, Louisville: I move that, as no invitation has been received, the next meeting be taken to Louisville. There has been a little mix-up on the thing. As it was assumed the next meeting would be held in Louisville, we can start now.

PRESIDENT BLACKBURN: So far as Warren County is concerned, we were under the impression that the next meeting would be in Louisville. I think that is the general impression in Western Kentucky.

O. R. KIDD, Paducah: We have some fairly good roads around Paducah and I think a year from now we will have No. 60 completed. I think the road by Bowling Green will be completed by then. We built a new hotel about two years ago; we are building another one that will be completed by April.

If the society cares to meet in Western Kentucky, we will be delighted to have you in Paducah.

LOUIS FRANK: I will be very glad, indeed, to withdraw the name of Louisville in case teh society desires to go to Paducah ,or has an invitation to go to Paducah. It was just in view of the fact that no place had been offered.

In view of what Dr. Kidd has said, I will be glad to withdraw my motion and second the motion that the meeting next year be held in Paducah.

W. B. McCLURE, Lexington: I want to make this point. I am not in favor of letting Dr. Frank withdraw that motion. He does it too eagerly. Louisville skipped a meeting that she should have entertained us; that was year before last when we went to Owensboro. I think she should make good, because it will be just three years since she should have entertained us. She and Owensboro swapped. She skipped one meeting she should have entertained us and I believe she ought to make good.

S. C. SMITH, Ashland: It is my understanding that the next meeting, the meeting after next year, automatically goes to Western Kentucky and, in view of that fact, I feel that we should go to Louisville next year. I think then the following year, if Paducah wishes to entertain us, it would be perfectly in order for them to invite us, but I think the coming year we should go to Louisville by all means.

GEORGE A. HENDON, Louisville: What I shall say is not expected to be construed as opposing the ambitions of Paducah, but, speaking in behalf of the Louisville profession, which I take the privilege of doing, I want to say if the society cares to come to Louisville, we will be more than pleased, more than delighted to have you with us.

I am afraid this discussion might engender the feeling in somebodys mind that we were not really anxious. I know Louisville will be glad to entertain the society.

W. B. McCLURE: Before Dr. Hendon takes that back, I hope you will have the motion, Mr. President. (Laughter)

PRESIDENT BLACKBURN: The motion of Dr. Frank is still before the House.

W. E. GARDNER: I should like to second Dr. Franks motion and assure the profession of Kentucky that we should like to have you in Louisville next year.

SECRETARY McCORMACK: I should like to ask unanimous consent for Dr. Frank to withdraw his withdrawal.

T. A. FRAZIER, Marion: I rise to a point of order. There is no motion before the House unless Dr. Frank makes the motion again; he made the motion and then withdrew it.

PRESIDENT BLACKBURN: He seconded it.

LOUIS FRANK: A Democrat will not do what a Republican does—withdraw his withdrawal.

The motion to go to Louisville in 1929 was carried unanimously.

W. M. MARTIN, Harlan: I hope this is not out of order.

In the last four or five years, quite a number have asked me, "When are you going to invite us to the mountains?" My answer has always been that I never invite anybody home with me unless I take good care of them.

Now we feel absolutly safe in the next meeting that goes to Eastern Kentucky in inviting this organization to meet us. I wish you would all bear in mind that we are going to take you down there next time.

JOHN W. SCOTT, Lexington: I rise to a rather delayed point of order. If the point of order has been made at the time it should have been made, it would have sounded invidious, because it would have sounded personal.

We have had excellent Vice Presidents last year, that is those who have been in office this year, and we have elected splendid Vice Presidents for next year, but I submit it is not on account of the way in which they are elected, but that other nominations should be made and that one Vice President should be elected at a time. To have three men named, one after another, and then made first, second and third Vice Presidents, as they are named, haphazardly, is not the kind of procedure that gets us good Vice Presidents except by chance, which, fortunately, has worked for us in the last two years.

Dr. Kavanaugh, our Vice President this year, presided splendidly and was excellent, and we have elected splendid men for next year, but I think the attention of the President should be called to the rule and that the rule should be enforced, unless it is set aside, and that a point of order should not be waited for, and the President in the future should be instructed to follow the rule in the election of Vice Presidents. I move you, sir, to that effect.

SECRETARY McCORMACK: I second the motion.

PRESIDENT BLACKBURN: The Chair will just state that it has been customary to print the names of three gentlemen elected as Vice Presidents, and not as first, second and third Vice Presidents. I don't know which way they are elected.

SECRETARY McCORMACK: They are elected as Vice Presidents and in case of disability of the President, the Council selects from the Vice Presidents a President.

The point of order is well taken, though. You can't elect three men on one vote. He wants to make a motion and I second it.

J. W. SCOTT: I believe that motion is sound. It may delay the proceedings a little, but I believe it is well worth while.

PRESIDENT BLACKBURN: The motion of Dr Scott, duly seconded, is that the Vice Presidents be elected one at a time as first, second and third Vice Presidents, rather than electing three Vice Presidents.

The motion was carried unanimously.

SECRETARY McCORMACK: I am glad Dr. Scott made that point because we ought to proceed in due order.

One other parliamentary point I should like to call your attention to is that when nominations are called for and only one nomination is made, an election is by ballot. A motion to instruct the Secretary to cast the ballot for the nominee is not in order. The motion is that the Secretary shall cast the ballot. Of course, there is only one ballot, but in election by ballot the ballot must be cast without instructions as to the casting of the ballot. That ruling has been made in the House of Delegates of the American Medical Association time after time and, under parliamentary law, there are no options in the matter.

I want to call your attention to that fact at this time, because it is an important thing in county society proceedings and all other proceedings.

LOUIS FRANK: There is matter I also should like to bring before the House, that is, as to the appointment of committees. It is customary, I think, for the presiding officer to appoint committees for the ensuing year. Heretofore, and up to the present time, it has been the practice to send notices of appointment out very late and but a short time before the meeting. This year the notices were sent out on the twenty-third of August, scarcely three weeks before this meeting was to be held. This hardly gives time for committees to get together and discuss the matter, or to discuss the reports, and, as a result, the report is made and is purely the personal expression, or opinions, as a rule, of the Chairman of the committee.

Also, on the particular committee which I am appointed to, the constitution provides for the appointment of only three members, in addition to which the President and Secretary shall be members of the committee. While the constitution is very much among friends and usually may be overriden, yet in this particular committee there are eleven members, which is far too many. I really think that the constitution should probably be amended, or the rules, whichever it may be; that this committee certainly at the present time, being a very important one, should contain more than three members. I refer to the committee of Public Policy and Legislation.

Again, as bearing upon the point which I first mentioned, last year during the time of all the disturbance in Frankfort, and the time the effort was made to disrupt the State Board of Health that had been built up, there was no committee to act at all.

I believe it would be well if it were understood, or if it were made mandatory to name this committee at least within sixty days of the meeting and that notices should be mailed at that time.

I think that should be done and, if there is no objection, I should like to make a motion that the rules be amended, whatever the procedure is, so this would be mandatory.

The motion was seconded by Dr. Hendon.

SECRETARY McCORMACK: Dr. Frank's motion is all right, but the permanent committee is always appointed at the expiration of the term and, as a rule, is included in the minutes. The Committee on Public Policy was a committee that was added by the House of Delegates several years ago and is not a committee provided in the by-laws. The Committee on Legislation is provided in the by-laws, and of that committee Dr. Abell is Chairman and was very active in the work during the recent session of the General Assembly. The Committee on Public Policy was constituted in 1924 as a special committee of the House of Delegates for that special purpose and has been a continuing committee since that time.

The Reference Committees of this House have always been appointed about thirty days before the annual session, because I don't get this list of delegates until about thirty days before and it is practically impossible for the President to appoint them.

The Jefferson County Medical Society elects its members of the House at the first meeting in September. There is no way of telling in advance who they are going to be, and the Reference Committees, as a rule, are members of the House of Delegates, unless it is on some special subject like the Heart Committee or Goiter Committee, or something of that sort where they select specialists.

The permanent committees are selected by the President.

LOUIS FRANK: Mr. Secretary, for once I beg your pardon, but you are wrong. The by-laws in Chapter 8 say, "The Committee on Public Policy and Legislation."

SECRETARY McCORMACK: That is a permanent committee of which Dr. Abell is Chairman.

LOUIS FRANK: I have here a notice which begins, "The Chairman of the Committee on Public Policy." There is no provision for a Committee on Public Policy.

SECRETARY McCORMACK: If you will look in the 1924 minutes, the House created a Committee on Public Policy consisting of eleven members, of which you have been Chairman since that time. It was during your incumbency as President, as I recall it.

LOUIS FRANK: I don't remember it.

J. W. KINCAID: Did they create that as a permanent or temporary committee, or a year to year committee?

SECRETARY McCORMACK: The standing committees are always appointed immediately after the conclusion of the session.

J. W. KINCAID: Since the by-laws already provide for a Committee on Public Policy and Legislation as one committee, and it a permanent committee, I see no necessity of appointing additional committees for Public Policy. Furthermore, I don't think the Secretary's point is well taken in that the appointments can not be made within sixty days since you don't know who the delegates are.

SECRETARY McCORMACK: That is not done in any society in the United States.

The standing committees are appointed immediately, always. The reference committees are always appointed just before the House convenes.

J. W. KINCAID: Will you please inform the House what are the standing committees and what are the reference committees?

SECRETARY McCORMACK: The reference committees differ from year to year, depending on the business to be transacted.

J. W. KINCAID: Do the by-laws make a distinction between them?

SECRETARY McCORMACK: Oh yes.

J. W. KINCAID: What are the standing committees? Is not the Committee on Public Policy and Legislation a standing committee?

SECRETARY McCORMACK: Yes, and that standing committee consists of: Irvin Abell, Chairman, J. D. Whittaker, Claude Youtsey of Newport, J. W. Stovall of Grayson, O. V. Brown of Island.

LOUIS FRANK: There are five on the committee and the constitution provides for three.

SECRETARY McCORMACK: They were added by the President. I did not have anything to do with that.

LOUIS FRANK: The President and Secretary are members of that committee.

J. W. KINCAID: The delegates are elected for two years; you don't have to wait for the end of the calendar year when delegates are elected. There are always enough holdover delegates every year at the close of the annual session to have names and members available to the President from which he may select the members of the standing committees.

SECRETARY McCORMACK: I am glad the discussion came up because, of course, I want to do whatever the House of Delegates desires.

The by-laws provide for the following standing committees: Scientific Work, Public Policy and Legislation, Medical Education,—

PRESIDENT BLACKBURN: I beg your pardon, Mr. Secretary, is that Public Policy or Public Instruction?

SECRETARY McCORMACK: Public Policy and Legislation; the committee which was created of which Dr. Frank was made Chairman during his incumbency as President, was made in accordance with a recommendation in his presidential address, at the conclusion of which it was moved that the committee be created, and he appointed the committee. A motion was made that he be made the Chairman of the committee; he objected but was elected by the House of Delegates to the position over his objection.

The Medico-Legal committee is a standing committee. As to the other committees, those appointed from time to time, it is stated in the by-laws how many members there should be.

Under the House of Delegates, reference committees shall be appointed for each annual session. The reference committees are appointed by the President after he has considered the things that will come before the House and the changes from time to time on new committees, discontinuing old ones under the instruction of the House. Dr. Frank has been a member of the House of delegates of the American Medical Association, and it is in accordance with the procedure there. The committees are never appointed—we never know who they are—until three or four days before. Dr. Hendon got his notice of appointment on Credentials of the House of Delegates of the American Medical Association two days before he left for the Minneapolis session; I got my notice of appointment on the Reapportionment Committee two days before the annual session.

The custom has always been to appoint the reference committees of the House of Delegates to consider the business of the House from the membership of the House, except in a special scientific subject.

The standing committees, of course, should always be appointed in accordance with the by-laws and they have heretofore been announced, and they are always carried in the Journal immediately after the annual session.

LOUIS FRANK: If the Secretary will refer to Chapter 4, Section 12, it says that the House of Delegates shall have authority to appoint committees for special purposes among members of the association who are not members of the House of Delegates, and such committees may report to the House of Delegates in person and may participate in the debate thereon.

These are the special committees. I think the point is not well taken that the appointment of these committees, in so far as is possible, should be delayed for eight or ten or twelve months, because it is not necessary that these members of committees be members of the House of Delegates at all.

PRESIDENT BLACKBURN: I should like to ask the Secretary regarding this: Here is a Committee on Legislation and Public Instruction, and, on the other side, we have a Committee on Public Policy.

J. W. KINCAID: That is not official; it is just from the Secretary's office. Here is the constitution.

PRESIDENT BLACKBURN: I can't quite reconcile a Committee on Legislation and

Public Policy and a separate Committee on Public Policy.

J. W. KINCAID: That is a mistake of the Secretary in opposition to the constitution and by-laws. This is our Bible; this is what we have to go by.

SECRETARY McCORMACK: This is the rule and the gospel. I just named the baby wrong; it is the same baby.

PRESIDENT BLACKBURN: I will just say to the House and to Dr. Frank that the permanent committees for the ensuing year will be announced shortly, by election day anyway, or Thanksgiving at the outside.

J. W. KINCAID: I should just like to ask an expression of opinion from the members here whether the Committee on Public Policy and Legislation, by amendment to the by-laws to be acted upon next year, should be increased to five members, with the Secretary and President making seven members of the committee. Is it unwieldly?

SECRETARY McCORMACK: It would be better to have five members.

J. W. KINCAID: I think, myself, it would be better to have five members.

LOUIS FRANK: I heartily agree, and they should come from different sections of the state.

J. W. KINCAID: That has to be submitted now and to lay over until next year.

SECRETARY McCORMACK: If you give notice of the proposed amendment and then submit it to each county society, that will be considered sufficient.

J. W. KINCAID: If that will be considered legal, I will draw up that amendment and it will be voted upon next year.

SECRETARY McCORMACK: I move you, sir, that the gratitude of this association be extended to the Madison County Medical Society and the Woman's Auxiliary of the Madison County Medical Society, to the President and Board of Regents of the Eastern Kentucky State Normal School and Teachers College, to the newspapers of Richmond, and to the citizenship generally for the extraordinary entertainment that has been furnished us during this meeting, and to the Pastor and Trustees of the Baptist Church, of the Christian Church and the Woman's Society of the Baptist Church for their courtesy in permitting us to use their building.

The motion was seconded and carried.

C. G. DAUGHERTY: Last night a motion was passed that Dr. Dunham be invited to appear before the House of Delegates.

PRESIDENT BLACKBURN: We will be glad to have Dr. Dunham and Dr. Anderson come forward.

I will ask Dr. Anderson to make a statement to the House of Delegates regarding the matter of the Veterans' Bureau.

W. W. ANDERSON: At the request of the House of Delegates last night, I considered this matter and, from the discussion that came up in the House of Delegates last evening, I was reminded very strongly of Burns' great lines:

O wad some Power the giftie gie us
To see oursels as ithers see us!
I wad frae mony a blunder free us,
    An' foolish notion:
What airs in dress an' gait wad lea'e us,
    An' ev'n devotion!

It does us good to see ourselves as others see us and, while I did not recognize the picture of the Veterans' Bureau as presented last night, perhaps there was some truth in it.

The Veterans' Bureau was represented as taking the attitude of a court in which the Bureau officers acted as judge and jury and the applicant occupied the unenviable position of the culprit.

We folk in the Veterans' Bureau did not realize that such a condition existed. It is quite unknown to us, but it would not be without its advantages to the claimant after all, for, in the court of justice under our system, the culprit is given the benefit of the doubt and he is innocent until he is proven guilty. That feature is correct. The Veterans' Bureau gives the claimant, after weighing all evidence presented, the benefit of any doubt. It does not create imaginary doubts and then decide them in the favor of the claimant.

Something was said about the kind of examination that the Bureau wants. Gentlemen, the Bureau does not ask you for examinations ordinarily at all. If it does, in isolated cases, it is expected to pay you for the examination; if it assigns you the duty of examining a man for Bureau purposes it should pay you for that work. But if the claimant comes to you and requests a statement from you concerning what you know about his disabilities to present as evidence for the Bureau to consider, that is quite another question; the Bureau does not pay for that, for that is the claimant's business in the working up of his case.

For that purpose, the Veterans' Bureau asks of the doctor who presents a statement in behalf of the claimant that he state clearly and succinctly what he knows about it. It is ordinarily unnecessary for him to state that this man was perfectly sound before he went into the service. The Government knows that, because they examined the man when he was accepted for the service and made note of disabilities that were present, and the law specifically states that the man is conclusively presumed to have been sound when accepted for service, except with reference to disabilities noted at the time of enlistment, or by the Government at some previous time.

So, whatever a man had, except deformities, deviated septum, astigmatism, except those disabilities not noted at the time of enlistment or previously by the Government, are held to be due to service. That is the law. The Veterans' Bureau did not make the law, please understand. Congress made it and that is what we act upon.

Now, what should you state in your affidavit in behalf of the claimant? State definitely what you know and what you are prepared to swear to. It is surprising how many statements come in from physicians, duly signed and attested, and then when the physician is personally interviewed he backtracks on the whole thing and says, "Well, he told me so and so and I accepted that for truth." He is just repeating hearsay evidence from the claimant, sometimes. You gentlemen don't do that, but you know how easy some doctors are in doing things of that sort. If you will ask your doctors at home to state what they truly know and are prepared, if required, to swear to about the case; that is what is necessary.

It is not enough to say: I found this man had tuberculosis, or, I found he had rheumatism.

When did you find it? When did you first see it? How soon after his discharge? What were the physical and clinical findings upon which you based your diagnosis?

It won't do just to state a diagnosis and let it go at that. How do you know he had it? In our examinations, we accept no examiner's diagnosis unless he has the physical and clinical findings to back it up.

The tendency of the Bureau and the Bureau officers is not to give the claimant too little; the natural tendency would be to take the line of least resistance and give him all he is entitled to and the benefit of a little doubt, and possibly a little more to keep him still. That would be the line of least resistance. Every work that is done by human hands falls down and fails sometimes. We are human in the Veterans' Bureau and we make mistakes in our practice there just as we did in private practice. Sometimes we go wrong. If we go wrong, and find ourselves wrong, we try to be manly enough to admit it and to change our diagnosis, or whatever may be necessary to correct the error, but try to give the claimant the benefit of any real doubt that exists. If the claimant is not satisfied with the results of his examination and a judication of his claim by the Veterans' Bureau, he has first of all the right to appeal and he can carry that appeal clear to the director, himself, at Washington.

If he is not satisfied, he can take still another course, he can bring in medical evidence, for everything will depend upon medical facts; it is a medical problem we are dealing with. He can bring in evidence that the Bureau is wrong, and if he brings in evidence with any probability at all that shows that the Bureau is wrong, the case is taken up for reconsideration.

For these doubtful and difficult cases of diagnosis, the Bureau has established three diagnostic centers. The first one in Cincinnati at the General Hospital, and I am glad Dr. Kennon Dunham is here because he was the daddy of the idea and helped to put it over. It has proved useful. We have one in Washington and we have one in California. There may be others established later. Doubtful and disputed cases that we cannot settle by ordinary Bureau facilities are sent to these diagnostic centers, manned by outstanding men. In the Washington center, several men from Johns Hopkins University are on the staff. In Cincinnati, the leading men in all the special lines connected with the Medical College of the University of Cincinnati are on the staff, and the best men they can get hold of try to solve the problems for us.

PRESIDENT BLACKBURN: I will ask Dr. Dunham if he will make a statement regarding the work from his point of view.

KENNON DUNHAM, Cincinnati: Members of the State Society, I am delighted to talk on this subject. I think everyone of us feels a responsibility to the boys who went in the army and are sick. I think you can realize the tremendous thing that Congress threw upon the nation, and that really fell upon the medical profession when it dumped this new set of laws, well conceived but certainly not worked out, not only for treating the ex-service man in the hospitals but for giving him a careful examination so as to compensate him on the line of his disability, doing away with the old pension idea, trying to get something better than the pensions that came after the Civil War.

It was a noble thought, but it has not been worked out and it never will be worked to a hundred per cent. It is only going to reach near perfection by the medical profession: it is never going to be solved by anybody but doctors, because it is purely, primarily, a medical question. I cannot bring anything to you that I could feel more than the tremendous responsibility that these men, in these various regional offices where they are examined, carry. It is the easiest thing in the world to throw bricks at the fellow who tries to do something, but it is just about the hardest thing in the world to try to go there and straighten up any mistakes that might be there.

In the first place, these men have to be men who will make a big personal sacrifice to take the job. They have to be men of unusual ability. It is a very common thing to find doctors feeling that the men in the Veterans' Bureau are second-class, shop-worn, shelf-worn, out of date, and can't make a living outside. Nothing is farther from the truth. I have worked very closely with the doctors in the Veterans' Bureau, both in Washington and in the regional offices, and, on the whole, I think the men in the regional offices are better than the doctors in the central office, but that is another story.

The things are done to the man behind the gun. When you go through the regional offices over the United States, you will find that the men working in there, by and large, good and bad, are away above the average of the medical profession in the United States. I don't believe anybody can challenge that statement. That those men are the leaders, we are not going to argue, but when it comes to those men being away above the average of the medical profession in the United States, I have never heard anyone challenge that.

Their job is about the hardest thing in the world. They have not only to apply medicine, but they have to apply medicine according to law, which law is modified by Bureau regulation. If you had to practice medicine and do a thing for your patients according to law and that law constantly changed by modification from a group of doctors of a central committee of the State Medical Society, you would be so mad in about a week you would just—well, you would just use profane language if you were very moderate; you might use a shot-gun before you got through. That is the difficulty.

What is your part in this? What can you do? You see the boy at home. You know he is sick. You know he needs help. What Dr. Anderson did not say was that the biggest thing you can put into that affidavit is your honest-to-God opinion as to that man's disability. Is he disabled, or is he a malingerer, is he putting on? They are all putting on a little, but how much are they putting on and how much is that man really trying to work? It is a human proposition. Then you state what is the matter with him, because he gets his compensation, supposedly, for his disability. He has to be given his compensation according to a name which we call a disease. This is heresy and it is not always admitted, and some of my good friends in the Bureau tell me this is not so, but, gentlemen, it is so, so you have to put a name down for this thing, and then, if you want to help that boy at all, you have to tell why you knew that; just to say it was tuberculosis or to say it was such and such a condition won't do. You have to present proof of that by the symptoms and the time you saw him, when you saw him, how long you saw him. Affidavit after affidavit comes in saying, "I saw that man twice; he had so and so." No physical sign, no rales, nothing with regard to his fever. You put your name down, after saying it was tuberculosis, but you haven't proved it, and you throw that in to Dr. Anderson and other men in the Veterans' Bureau, and they have to throw it out. They cannot take it. You couldn't take Dr. Anderson's report under those conditions. You have to substantiate what you say.

This is a medical problem. It is not anything abstruse. You don't have to know these rules and regulations. You don't have to work under them.

The biggest thing that I did for the diagnostic centers when they were first started, was to say: Now, wait a minute, a diagnostic center is not going to be trammeled in its diagnosis by your rules and regulations; we are going to operate a diagnostic center as doctors and we will never want to know your rules and regulations. So, not working under rules and regulations, and the men in the regional offices being forced to work under rules and regulations, there has been some difficulty.

I am mighty glad to have the opportunity to present this point, because I think that has been one of the greatest causes of difficulty between us.

No doctors ever work on the same case or the same problem without having honest-to-goodness difficulties. That is the big thing. You are like the diagnostic centers. Each of you men, in helping those boys present their cases, do not have to be limited to the rules and regulations; you can present it as you see it as a doctor, but, remember that you have to prove your case, that your saying that this man had so and so does not go, but you have to show somebody else so that it can go.

If you will acknowledge that point, which some doctors will not acknowledge, and sit down and make your affidavits with proof of what was the matter, Dr. Anderson can take that almost as one hundred per cent the minute he gets it. If you don't do that, he cannot take it. He is in a delicate position. All of these men working for the Bureau are in such a position. The doctors in the Bureau ought never to forget what happened after the Forbes investigation. Claimants were given, honestly by the doctors, certain compensations, and when this Forbes' investigation came on, the honesty of the doctors was challenged in a second by Congress, and it looked for a while like some of those men might go to the penitentiary.

There is a responsibility. Dr. Anderson shows us the side of what would be the easiest way. On the other hand, an investigator can go through any of these regional offices and it would be very hard for the doctor to substantiate why he made this 25 per cent rather than 15 per cent, or above 10 per cent rather than below 10 per cent. It is not going to be easy always to verify it.

Dr. Anderson does not have as much to do with that as does the rating board doctor. That is another complication of the Bureau. Dr. Anderson makes his report and then the group of three, who are to pass on this claim, take his report and decide whether they will or will not accept it.

Your responsibilties, above everything else, are two: First, when you honestly think that man is deserving of something, that you find out what it is, put a name to it and prove it. Second, discourage men who are trying to get money who ought not have it; don't only keep them from getting you in trouble, but getting themselves into trouble.

PRESIDENT BLACKBURN: I surely express the appreciation of the House of Delegates to Dr. Anderson and Dr. Dunham for trying to clarify this apparently confusing matter to the doctors out in the state.

L. H. SOUTH, Louisville: We have a Speakers' Bureau and I have already gotten twenty-five doctors to join this, and we are going to get more. We will supply speakers to any society that wants them.

I should like to offer a resolution that the President have the power to appoint a committee that will allow us to have a Student Loan Fund to educate Kentucky boys and girls in medicine.

The motion was seconded.

PRESIDENT BLACKBURN: It is moved and seconded that the Chair be empowered to appoint a committee to solicit funds to help to educate worthy boys and girls of Kentucky in medicine.

L. S. HAYES: A lending fund?

L. H. SOUTH: Yes, a students' loan fund; they pay it back.

The motion was carried.

The following bills which had been approved by the Council, were ordered paid.

ACCOUNTS OF KENTUCKY STATE MEDICAL ASSOCIATION

1928		
September 29—Voucher Check No. 3		$ 186.50
DR. A. T. McCORMACK, Louisville.		
To September salary, Secretary	$150.00	
To sundry expense at Richmond meeting	36.50	
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 4		112.80
DR. L. H. SOUTH, Louisville.		
To September salary, Business Manager	$100.00	
To expense at Richmond meeting	12.80	
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 5		111.10
ELVA GRANT, Louisville.		
To September salary, Bookkeeper	$75.00	
To Honorarium	20.00	
To expense at Richmond meeting	16.10	
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 6		63.41
MAYME SULLIVAN, Louisville.		
To Honorarium	$25.00	
To expense at Richmond meeting	38.41	
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 7		75.80
DR. CHAS. A. VANCE, Lexington.		
To expense as Councilor of 10th District.		
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 8		15.00
J. W. MAUPIN, Richmond.		
To 3 nights' services as watchman.		
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 9		66.80
DR. D. M. GRIFFITH, Owensboro.		
To expense as Councilor of 2nd District.		
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 10		60.80
B. P. EUBANK, Bowling Green.		
To auditing books and accounts of Ky. State Med. Ass'n & Woman's Aux., K. S. M. A.	$50.00	
To expense and railroad fare	10.80	
Approved by Council and Ordered Paid by House of Delegates.		

September 29—Voucher Check No. 11			12.92
MEFFERT EQUIPMENT CO., Louisville.			
To 1000 Cards		$6.00	
To 1 Card Box and Guide		1.12	
To 1500 Cards		3.10	
To 1 Index and Guide		2.70	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 12			38.50
AMERICAN MEDICAL ASSOCIATION, Chicago.			
To 2500 Inserts, Photo for Annual Number.			
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 13			17.50
ADDRESSOGRAPH CO., Chicago.			
To 1 lister.			
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 14			28.84
AGNES BLAIR, Louisville.			
To Honorarium		$20.00	
To expense at Richmond meeting		8.84	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 15			250.00
FRED FORCHT, Attorney, Louisville.			
To services, Jan. 1-June 30, 1928		$150.00	
To services, Starr vs. Dulaney case		100.00	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 16			10.00
MARSHALL JONES, Reporter, Paducah.			
To reporting case of Dr. Bob C. Overby vs. G. T. Barnhill.			
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 17			14.95
DR. D. R. BOTKIN, Hazard.			
To balance due in case Dr. D. R. Botkin vs. Bert Williams.			
Amount of court costs		$20.00	
Credit by check No. 163		5.05	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 18			21.50
DR. W. B. McCLURE, Lexington.			
To expense as Treasurer at Richmond meeting		$16.50	
To stamps for Treasurer		5.00	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 19			69.00
JOHN P. MORTON Co., Louisville.			
To 600 1928 programs for K. S. M. A. meeting.			
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 20			109.28
BRAKMEIER BROS., Louisville.			
To 200 buttons		$10.00	
To 300 gold bars		99.28	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 21			38.83
CHARLOTTE TAYLOR.			
To Honorarium		$20.00	
To expense at Richmond meeting		18.83	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 20			59.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To July issue, 2300 88-P		$481.20	
To envelopes		15.00	
To printing envelopes		2.30	
To inserts		5.00	
To 30 changes		6.00	
		509.50	
Less Ck. No. 177, paid on account		450.00	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 21			51.50
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To August issue, 2300 88-P		$481.20	
To envelopes		15.00	
To printing envelopes		2.30	
To inserts		5.00	
To 40 changes		8.00	
		511.50	
Less Check No. 181, paid on account	450.00		
Less Ky. T. B. Ass'n Check	10.00	460.00	
Approved by Council and Ordered Paid by House of Delegates.			
September 29—Voucher Check No. 22			630.45
TIMES-JOURNAL PUBLISHING CO., Bowling Green.			
To September issue, 2400 92-P		$511.84	
To 103,574 table set		105.81	
To 2 sets inserts		10.00	
To envelopes		15.00	
To printing envelopes		2.30	
To 35 changes		7.00	
		651.95	
Less by 86 errors at 25c each		21.50	
Approved by Council and Ordered Paid by House of Delegates.			

September 29—Voucher Check No. 23		23.15
TIMES-JOURNAL PUBLISHING CO., Bowling Green.		
To 200 Commercial Exhibits	$6.00	
To 200 Floor Space Blanks	7.00	
To Express on Photos	1.65	
To 1000 Index Cards	8.50	
Approved by Council and Ordered Paid by House of Delegates.		
September 29—Voucher Check No. 24		300.00
MASTER REPORTING CO., Chicago.		
To account of reporting Richmond meeting.		
Approved by Council and Ordered Paid by House of Delegates.		

The House of Delegates adjourned sine die, at nine-fifty o'clock to meet at the call of the President or at the next annual session.

A. T. McCORMACK, Secretary.

ORIGINAL ARTICLES

MODERN CONCEPTIONS OF CONTAGIOUS DISEASES.*

By J. H. Pritchett, M. D., Louisville.

The trend of modern medicine is that of prevention. Interest in preventive medicine has taken such a firm hold on the medical profession and the laity as well that nearly every community is now taking steps toward stamping out infectious diseases. We should bear in mind that public health administration as well as medicine in all its branches is an advancing science and as knowledge increases, rules and regulations are apt to change. So rapid has been the advance made in the field of contagion as to warrant a consideration of such. This paper will consider only the more common contagious diseases which are far-reaching in their effects and are more frequent in childhood. The laity has become enthusiastically aroused concerning the prevention of contagious diseases and are demanding protection. If there be physicians who are antagonistic to such demands or decry or scoff at such practice, the sooner they change their attitude the better for them and their clientele. The general practitioner constitutes the first line of defense in the control of communicable diseases. All communicable diseases should be reported in most instances calls for a placard. However, merely a red sign bearing the word scarlet fever placed on the house means little unless there is co-operation on the part of the physician, the family and the health office.

Our isolation or quarantine should be moderate as to duration, for instance, there is no excuse for a six weeks' quarantine for a simple uncomplicated case of scarlet fever. The author wishes to consider the following in the order named: Diphtheria, measles, pertussis, scarlet fever.

Diphtheria.

That once dreadful scourge has almost been conquered, the former belief that the infant was immune is no longer a safe doctrine. Ravenel[1] reports a series of cases in infants under one year, and while the majority of infants are immune, it is well to bear in mind that after six months diphtheria occurs not infrequently. The most dangerous time is the pre-school age. The Schick test you are familiar with, its reliability is definitely established and from observation extending over a period of years, we are certain of the following facts:

1. That most infants have an immunity which diminishes after six months to one year.
2. That most pre-school age children have little or no immunity.
3. A rough estimate shows that about one-third of the school children in the city have protection as compared with two-thirds of those in the rural districts.
4. That immunity following an attack of diphtheria depends upon the individual, many developing no immunity, others that of short duration, and a very few may have permanent immunity; in view of this fact a Schick test should be done two or three months following an attack.

The question as to the permanency of the toxin antitoxin immunity is an important one. Park[2] states that eighty or ninety per cent develop immunity after the third injection. In order to determine who are protected, it is very important to do a Schick test three months following the attempted immunization. If positive, another series of injections should be given. In the opinion of the writer, it is a safe plan to immunize every child at or before the pre-school age. In fact it is advocated by authorities even in infancy. The toxin antitoxin is given in a series of three injections at weekly intervals. The protection develops slowly, being probably complete in about three months. There is little or no reaction attending such injections. Those known to be sensitive to horse serum can be given the toxin antitoxin prepared from goat serum. The benefits of the diphtheria antitoxin are too well known to mention. Success in treatment depends upon early administration of large doses of antitoxin intramuscularly if seen early, intravenously or intraperitoneally in severe cases or those seen late. Quoting from Platou and Stewart[3] the simplicity of the technique and the avoidance of such reactions associated with dyspnea makes the intraperitoneal a method of choice in advanced laryngeal diphtheria. Slowly but surely diphtheria is being stamped out.

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*Read before the Kentucky State Medical Association, at Richmond, Sept. 10-13, 1928.

MEASLES.

We are rather prone to view measles as being of minor importance. On account of the frequent serious complications and the numerous sequela, measles deserves our earnest consideration. The specific cause or organism responsible for this disease is not definitely identified. Tunnicliff states that a form of diplococcus is the cause. Ferry and Fisher[4] claim to have isolated a streptococcus in pure culture from the blood in early stages. They call this organism "Streptococcus Morbilli." It seems likely that this is the same as described by Tunnicliff. The question of our producing immunity against measles is an interesting one. Undoubtedly the time will come when we will be able to protect children just as we now do against diphtheria. At the present time we are able to produce passive immunity through the use of a convalescent serum. The donors, of course, should be free from syphilis, T. B., and other diseases. The antibody contained in the serum is greatest immediately following the convalescent period, although it can be used as late as twenty days after the attack. According to Park and Freeman, if 6 to 10 cc. of plasma or serum is given within three days after exposure, a positive immunity lasting two or three weeks will be obtained. Such a procedure is of great value in hospitals and institutions. Karelitz and Leven[5] state that children under three years, infants in hospitals or nurseries, tuberculosis suspects or others in whom measles would be a dangerous complication, should be treated for the purpose of obtaining complete passive immunity. For protection for a child up to three years who has been exposed (from one to four days) 5 cc. of convalescent serum or 25 cc. adult serum or 75 cc. adult whole blood is given. If the time of exposure is over six days, the amount given should be doubled. The ideal would be to produce a modified measles. This can be done by giving a small amount (2 to 4 cc.) convalescent serum within four days after exposure. Hoyne and Tunnicliff[6] report good results obtained from goat serum. For the present, however, human serum is preferable. Our State Laboratory is able on short notice to furnish human serum, especially when measles is prevalent, at slight cost.

PERTUSSIS.

Contrary to the wide spread popular opinion, pertussis is a serious disease. Crum[7] estimated that one per cent of the total deaths from all causes in twenty-four countries were related directly or indirectly to pertussis. According to Johnson[9] approximately one hundred thousand children died in the United States in ten years as the result of this disease.

The most effective means of control are:

1. Early recognition of the disease; this is quite difficult at times. However, a cough which increases in severity, worse at night, accompanied by catarrhal symptoms with usually negative chest signs and a marked increase in the white blood cells, would suggest pertussis.

2. Isolation. Keep from school and other public places from six to eight weeks, possibly longer. Patients should be kept, as far as possible, out doors.

3. Quarantine contacts for twelve to fifteen days following the last exposure to a known case.

4. Immunization. There is very positive evidence that pertussis vaccine prepared from the pure culture, either stock or autogenous (use autogenous where possible) will in most instances protect the child for a short period. It must be given early and in fairly large doses. Three injections at two day intervals is recommended. The therapeutic or curative effects of pertussis vaccine is variable. The author uses it almost routinely. In many cases the results are very gratifying. In others no improvement is noted, but in the majority of cases some benefit will be obtained. The drugs, cures and remedies suggested are legion, which proves that we have no one drug of marked superiority. Among the recent suggestions is the x-ray, one to three exposures at two or three day intervals with a tube distance of 28 to 14 inches. The dose is 4 milliamperes with 2 milligram aluminum filter and 7 inch spark gap. The author has had no experience along this line. Another suggestion is the use of ether intramuscularly, 1-2 to 2 cc. being given every other day, 4 to 6 injections being used. This method has been highly advocated by some authorities. The writer's experience has been limited to seven cases only, one case was markedly improved, two cases resulted in abscesses, and the remaining four complained bitterly of intense pain following the injections, and apparently showed no improvement. Ether and olive oil can be used per rectum. This is a safe procedure with practically no discomfort and the results obtained warrant its use in severe

cases. We are told that the effects produced are due to the antispasmodic, antiseptic and narcotic action. Ephedrine, the alkaloid of Ma-Huang, is a comparatively new drug suggested. In action it is similar to other antispasmodics. Another very important point is to keep up the patient's resistance, and in the case of an infant, forced feeding may be used. When the infant vomits its food, refeed it once. Following an attack of pertussis the child's health should be guarded very closely for at least a period of one year.

SCARLET FEVER.

Probably more marked advance has been made in scarlet fever than any of the contagious diseases. It is generally agreed that the streptococcus hemolyticus (there may be a variety of strains of this organism; this accounts for certain discrepancies noted in the prevention of scarlet fever) is the cause of scarlet fever.

The Dick test is a reliable index of immunity and susceptibility to scarlet fever. However, there may be variations in the sensitiveness of the skin, thus producing pseudo-reactions. The Dick test is not as yet on the same plane with the Schick test. Undoubtedly this test soon will be so standardized as to be universally accepted. The diagnosis of scarlet fever is by no means always easy. There are border line cases and the so-called scarlantina (a vicious term) which almost defy identification. We now have a fairly reliable diagnostic aid, the Schultz-Charlton phenomena also known as the blanching or the extinction test. Briefly the test is: inject intradermally 1-2 to 1 cc. scarlet fever antitoxin in the suspect, selecting a point where the rash is pronounced. If positive for scarlet fever, there appears in a few hours at the site of injection, a blanched area varying in size. This reaction is due to the neutralization of the toxin in the tissue.

Concerning the question of active immunity against scarlet fever, naturally inquiries arise such as: Is it safe? Is it permanent? Should it be recommended as a routine health measure? Does it compare with the toxin antitoxin in diphtheria? To answer the last question first, scarlet fever toxin as an immunizing measure does not compare with the protection obtained through the toxin antitoxin in diphtheria. We must confess in all honesty that perfection has not been reached. Active immunization against scarlet fever is still somewhat experimental and we are not ready to recommend it universally as a public health measure. We know that active immunization has been produced in many instances, in others it has failed, in still others severe reactions have caused a discontinuance. There is at present two methods of active immunization: (1) The use of the scarlet fever toxin in 1 cc. doses at weekly intervals for five such. The first dose represents 500 skin doses. This is gradually increased so that the last or fifth injection represents 40 to 60,000 The injections are made subcutaneously and children under two years should receive about one-half the usual dose. Protection should be obtained within two months. No individual can be said to be immune until he shows a negative Dick test. The naked scarlet fever toxin is so potent that frequent severe reactions occur. Many of you can possibly testify to this. Larson[9] and his associates found that they could detoxify scarlet fever toxin by the use of two per cent sodium ricinoleate or castor oil soap, and it was so prepared that the desired amount of toxin was contained in 1 cc. which represents 3 to 4000 skin doses. They suggest one dose, and occasionally the second or third.

It is hard to understand how one single dose of the scarlet fever antigen, as it is called, will give the same protection as the five injections of the scarlet fever toxin. Larson, however, in an open letter (Minnesota Medicine, page 192, March, 1928) states "With regard to the one dose method, I should like to point out that there is no reason why repeated doses cannot be given if desired. Published reports show that one dose of the antigen gives a ten per cent higher incidence of negative skin doses than five doses of the naked toxin also recommended. Therefore, continues Larson, it would seem that the ricinoleated antigen has a decided advantage over other types of vaccine."

Although the writer has used this method in quite a number of cases, he is not in a position to give a valued opinion, as three cases of his series developed scarlet fever later, and the remainder were not Dick tested. As to the use of scarlet fever antitoxin, curative or therapeutic, theoretically it is indicated in all cases The writer uses it only in the severe cases and in those presenting marked angioid symptoms. In the mild type there is seemingly no need for the antitoxin, furthermore, we frequently see rather severe reactions following its use, the effects of which are much worse than the disease. When you come face to face with a severe reaction in a young child, you will wish you were in Hong-Kong. In administering the antitoxin it should be used early intramuscularly and at body heat. In desperate cases the intravenous route is suggested. It is a good plan to administer at the same time 1-2 to 1 cc. of adrenalin. This seems to modify any untoward effects of the antitoxin. The therapeutic dose represents

30,000 skin doses, one injection usually being sufficient. Occasionally a second and even a third must be used. The results obtained by the use of the antitoxin are often brilliant. The temperature rapidly drops, the toxemia abates and the rash fades. In other words, a markedly sick child is practically convalescent in three days.

We still have complications despite the use of the antitoxin, therefore, rest in bed at least ten or twelve days, skillful nursing and treatment otherwise is indicated. We should not be discouraged concerning scarlet fever material. Bear in mind that it has been over thirty-six years since Behring and Wernicke[10] communicated in the Seventh International Congress of Hygeine in London, proof that blood of animals artificially immunized against diphtheria would protect and cure other animals inoculated with the diphtheria bacillus or its toxin. It has been only in the past ten years that we have been able to remove many serious objections existing in diphtheria antitoxin. With such master minds as Dick, Dochez, Larson, Park, Schultz and their co-workers, these problems will surely be solved, and when truth has a hearing, the names of the above mentioned will be grouped with such men as Schick, Odwyer, Klebs, Loffler, Behring, Rux, Yersin and Zinger.

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4 Terry & Fischer, Abt Year Book, 1927.
5. Karelitz & Leven, Am. J. Dis. Children, Mar. 1927.
6. Hoyne & Tunnicliff, J. A. M. A., Dec. 25, 1926.
7. Crum, Am. J. Public Health, 1915.
8 Johnson, Arc. Pediatrics.
9. Larson, Univ. of Minnesota Dept. Pediatrics, 1926.
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Case of Biliary Panlithiasis.—Loeper et al. report a case of cholelithiasis of the intrahepatic and extrahepatic bile ducts and of the gallbladder in a man, aged 37. When seen, the patient presented icterus, vomiting, rapid respiration, a temperature of 40 C., a pulse rate of 120, rigidity in the right half of the abdomen, and pain on pressure in the right hypochondrium. On account of the poor general condition of the patient, surgery was considered contraindicated; he died six days later. At necropsy, subhepatic adhesions limiting a purulent cavity were found. The gallbladder was enlarged and thickened and in it were some large calculi, one of which was 6 cm. long. The liver was enlarged and contained numerous abscesses; it seemed to be stuffed with innumerable calculi, most of which were located in the bile ducts but some of which were in the abscesses. The authors consider that one of the most striking features of these larger collections of gallstones is their latency.

THE PRESENT STATUS OF WHOOPING COUGH.*

By J. L. Jones, M. D., Louisville.

This paper may be looked upon more as an epidemiological than a clinical consideration of whooping cough, and it is given not with the idea of presenting anything new, but rather with the thought in mind of refreshing our memories in relation to certain aspects of this disease and especially as to the importance and seriousness of the whooping cough problem. The date presented herewith, was obtained through a rather painstaking review of the whooping cough literature, especially of the last ten years, and a detailed study of seven hundred cases of this disease observed through the Whooping Cough Clinic of the Boston Floating Hospital from November 1925 to June 1926.

The first well attested account of a whooping cough epidemic is that by Baillour of Paris, who in 1578 wrote of a prevalent convulsive cough and remarked that the malady had not previously been described. During the seventeenth century this disease was known in England and Scotland by such names as chin-cough, kink-cough and kink-host. It was not until 1701 that "Whooping Cough" became a separate entry in the London Bills of Mortality. It was in Sweden, however, that whooping cough seems first to have been assigned its rightful place in the nomenclature of diseases. From 1749 to 1764, 42,393 deaths were recorded under this title in that country.

Why this disease did not receive earlier recognition is difficult to say. Some feel it did not exist while others feel it is more probable that this peculiar cough was regarded as a mere freak and not as significant of a distinct and serious disease.

At the present time statistics show this disease to be world wide in its geographic distribution. No country, climate or race seems to be immune. However, its extent and fatality vary greatly in different countries and are apparently effected by the varying circumstances of age, sex, season, climate, altitude and various other factors. Many writers feel that this disease is rarer in tropical and sub-tropical countries, increasing in prevalence and severity as we go north, but all admit there are exceptions, as for instance, in the mild epidemics of Iceland and in the severe ones of the West Indies. It is quite generally conceded that severity of climate, other things being equal, is an influencing factor since upward of sixty per cent of the complications of whooping cough are of a respiratory character.

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*Read before the Kentucky State Medical Association, Richmond, September 10, 11, 12, 13, 1928.

In regard to race and nationality distribution, Hirsch, writing in 1881 makes the following statement, "differences of race and nationality do not create a predisposition to, or an immunity from, whooping cough." This statement is just as verifiable today as at the time of Hirsch. It has been noted in the United States that the negro is particularly susceptible to this disease, both the attack-rate and the death rate being several times higher than in the white population, however, this is looked upon as being due to their low social and economic status and not to any inherent racial characteristics.

A careful investigation of numerous statistics from the literature, relative to seasonal prevalence in whooping cough, revealed with few exceptions, that the curve or morbidity differs from that of mortality. In the former there is a pronounced minimum in the fall, increasing quite sharply through the winter to a spring maximum and then gradually receding during the summer. In the latter, two peaks occur, one in the spring and another in the late summer or early fall. The increased incidence in the spring is looked upon by many as being closely related to decreased bodily resistance following the winter, and not to any difference of virulence in the causative organism. The rise in the mortality curve during the late summer or early fall has been found to be largely the result of a marked predominance of deaths in infants during these hot months and leads to the conclusion that it is largely due to complicating gastro-intestinal disease.

Although whooping cough appears with more or less uniformity from year to year and the steeple-like rises at varying intervals, so frequently associated with other communicable diseases, are entirely lacking, yet it blazes up with renewed vigor every few years, indicating a more or less definite periodicity. The average interval between such epidemics varies considerably, but that most frequently found is either two or three years.

A study of the urban and rural distribution of whooping cough from the mortality records of the United States Census Bureau, reveals an excess of rural deaths for each year from 1907 to 1924. This does not mean, however, that this disease is more prevalent or more fatal on the farms than in the city. It is more likely due to a higher death rate in the villages and small cities included in rural area.

Morbidity statistics for pertussis are scarce and unreliable because of inefficient reporting. It has been estimated that not more than ten to twenty-five per cent of all cases are reported. However, as time goes on considerable improvement is being effected in most places. Figures ranging from less than 100 to more than 1,000 per 100,000 population have been recorded. Some of the more important factors which prevent efficient reporting are given as follows:

1. Many case are unrecognized.
2. Many well marked cases are not reported because the gravity of the disease is not widely recognized by either physicians or the public.
3. The case is frequently not seen by a physician until broncho-pneumonia is present and the nature of the original disease is masked.

Mortality statistics are much more numerous and reliable than those for morbidity. Crum compiled and combined the whooping cough statistics of twenty-four widely separated countries of the world during the five year period from 1908 to 1912 and found that one per cent of the grand total of deaths from all causes was due to this disease. The average annual death rate from pertussis in these twenty-four countries was 8.0 per 100 000 population.

In the United States Registration Area from 1900 to 1922 the average annual mortality from this disease was 11 1 per 100,000 population. The number of deaths from pertussis in Denmark from 1910 to 1919 was 19.4 per 100.000 inhabitants. In Kentucky from 1911 to 1927 inclusive, there were 5.880 whooping cough deaths or a mortality rate of 14.5 per 100.000 population.

In table I from Madsen, whooping cough mortality is compared with that from other infectious diseases, in Denmark, in England and Wales and in the United States Registration Area. According to these figures, in Denmark, pertussis was responsible for twice as many deaths as diphtheria and about three times as many as either measles or scarlet fever; in England and Wales measles caused more deaths than whooping cough but the latter exceeded diphtheria as the cause of death and was responsible for over four times as many deaths as scarlet fever. In connection with the figures from the United States, Madsen makes the following statement: "In the United States Registration Area whooping cough has only third rank but when you have stamped out diphtheria and typhoid fever by the admirable systematic campaign you are carrying out now, whooping cough will take the lead in the infectious diseases of children common in our climate, and for that reason demands the attention of public health officers."

TABLE 1.

PERCENTAGE OF DEATHS FROM ALL CAUSES

	Denmark	England-Wales	U. S. Reg. Area
Whooping Cough	1.4	1.3	0.7
Diphtheria	0.7	0.9	1.2
Measles	0.5	1.9	0.6
Scarlet Fever	0.4	0.3	0.4
Typhoid Fever	0.2	0.3	1.0

Figures from Hamburg for the fifty year period from 1872 to 1912 show a higher death rate from whooping cough than from measles, scarlet fever or diphtheria. The death rates from measles, scarlet fever, diphtheria and pertussis for ages under fifteen in California from 1905 to 1919 show that for this age group whooping cough is far more important as a cause of death than either measles or scarlet fever and even exceeds the diphtheria rate for several years.

In Kentucky from 1911 to 1927 inclusive, there were eight-tenths as many deaths from whooping cough as from diphtheria, over one and a third times as many as from measles and seven times as many as from scarlet fever.

The failure to report all cases of whooping cough and especially the mild atypical cases precludes the possibility of arriving at complete and accurate fatality statistics. Fatality rates ranging all the way from three to fifteen have been reported. It is claimed by many that if all cases were reported the case mortality would be nearer one-half to one per cent. In Massachusetts from 1913 to 1919 there were 37,637 cases of pertussis with 2,384 deaths. It is interesting to note that during the same period there were four times as many cases of measles yet only seven-tenths as many deaths. This gives a case mortality of 6.3 per cent in whooping cough as compared to 1.3 per cent in measles.

All figures indicate that whooping cough is largely a disease of infancy and early childhood. From fifteen to twenty per cent of all cases and upwards of fifty per cent of all deaths are under one year, and from sixty to seventy per cent of all cases and upward of ninety-seven per cent of all deaths are under five years of age These age ratios for morbidity and mortality in pertussis are fairly constant in all statistics.

Figures from Massachusetts from 1887 to 1922 and from the United States Registration Area from 1900 to 1921 show that in infants the proportionate mortality from whooping cough was highest of all communicable diseases.

Fatality is even more pronounced in the younger age groups than either morbidity or mortality. Under one year the fatality rate is around thirty per cent with about one-half this amount for the second year and after five years it is practically nil.

Thus it is evident that in children under five years of age, whooping cough is one of the most important and serious diseases with which we have to deal. The old saying that we so often hear from parents, that since John or Mary must have this disease sometime, they just as well get it over with, is surely prompted by a most unfortunate lack of understanding and enlightenment. From thirty to forty per cent of the whooping cough cases are in patients over five years but only three per cent of the deaths are in this age group, this means that could we but postpone this disease until after the fifth year, the mortality would only be about one-tenth of what it is at the present time.

In relation to sex distribution in whooping cough, no matter what set of figures are analyzed, one always finds a higher incidence and mortality in females . This sex ratio is peculiar to this disease and maintains in every age group. In practically all instances the case-ratio and death-ratio of males to females is essentially the same, approximately forty-five to fifty-five. This indicates that the higher mortality of the female sex is due to the greater number of cases and not to the more fatal character of the disease among them.

Various theories have been advanced to explain this sex difference but all have been found wanting. Some feel that it is due to a more sensitive nervous system in the female; other claim it can be explained on the basis of the difference in laryngeal structure in the two sexes, while others contend it is due to inherent power of resistance.

At the present time practically all investigators regard whooping cough as a specific infection caused by the B. pertussis. Bordet and Gengou in 1906 were the first to establish this causal relationship and since that time the organism has been called by their name. This organism is a non-motile, cocco-bacillus occurring singly, in pairs and often in groups. It has neither capsule or spore. It stains poorly with anilin dyes but carbol methylene-blue or carbol fuchsin stain it promptly. There appears to be a close similarity between the Bacillus of whooping cough, the Influenza bacillus and B. Bronchisepticus but they can be differentiated by cultural and serological methods. By agglutinin absorption tests, three distinct types of B. pertussis have been identified.

The essential ingredients of the original medium used by Bordet and Gengou for growing and isolating the whooping cough organism consisted of blood agar, glycerine and potato. At the present time most investigators are using this same medium but slightly modified. On this medium the B. pertussis develops a small pearly gray regular colony with a characteristic hemolysis.

The pathology in whooping cough has been described by Mallory. He found masses of minute bacilli packed in between the cilia of the epithelium cells of the trachea and bronchi, but never within the air sacs. He thinks that while the action of the organism is chiefly mechanical it evidently secrets a certain amount of toxin. He makes this deduction from the following observations: There is a slight inflammatory reaction, leucocytes in small numbers migrating through the walls of the trachea; the blood of whooping cough patients always shows a certain degree of lymphocytosis; the blood serum develops an antibody which renders it possible to obtain a complement fixation test.

Hayakawa, in an attempt to study the pathology of whooping cough, made intravenous injections of the endotoxin prepared from B. pertussis, into rabbits. Large and lethal doses caused a hypermia and oedema of the lung with hemorrhage into the interstitial tissue along the bronchi. When one twenty-fifth to one-thirtieth of a lethal dose was given, a round cell infiltration of the lung and oedema resulted. After about seven days the connective tissue began to increase. Hayakawa feels that these processes may cause a decreased circulation in the lung from an increase in the connective tissue and possibly also by an irritation of the capillary endothelium.

The roentgen-ray findings in pertussis which some claim are characteristic are considered later on under diagnosis.

It is the consensus of opinion that all are susceptible to whooping cough but in a certain indefinite percentage the disease is so mild and atypical that it is not recognized. Second attacks occur but are rare.

The period of incubation in pertussis seems to vary considerably. Intervals ranging from three days to five weeks have been reported. Fourteen days is commonly regarded as the average. In an attempt to learn more about the incubation period of this disease, the writer studied the frequency distribution of the interval of time elapsing between multiple cases in the same family. It was assumed in this study that the first cough marks the onset of the disease, an assumption that may be questioned by many. The interval between first and second cases was obtained in 494 families and the interval between second and third cases in 134 families. A most common interval ranging from seven to fourteen days was indicated by this study, but a wide range of variation was recognized to exist. In two cases on whom accurate and definite data was obtained, the interval between exposure and first cough was nine and thirteen days, respectively.

The sources of whooping cough infection lie in the discharges from the laryngeal and bronchial mucous membrane of infected persons and sometimes also of infected dogs and cats, which are known to be susceptible, while contact with an infected person or animal or with articles freshly soiled with discharges of such a person or animal, is the chief mode of transmission.

Clinical, laboratory and epidemological findings all indicate that the period of infectivity in this disease, although variable, is not nearly so prolonged as formerly supposed. The catarrhal stage, the period before the characteristic whoop makes the clinical diagnosis possible, seems to be the most infectious, after which contagion diminishes quite rapidly so that after the second or third week of the spasmodic cough there is little danger. According to bacteriological findings the whoop appears to have little bearing on the period of infectivity. Numerous cases have been found positive in the early stages and negative after the whooping commenced. At the Whooping Cough Clinic of the Boston Floating Hospital, two cases were found positive upon bacteriological examination twenty-four days before the whoop and negative nine days and two days before the whoop, and one case was positive twenty-two days before the whoop and negative six and three days before the whoop, thus indicating that the whooping may come on at a stage of the disease when the patient is bacteria free.

The diagnosis of whooping cough may be considered under five main headings, namely: clinical symptoms, blood picture, x-ray findings, bacteriological and serological findings and intracutaneous reactions.

I shall not attempt here to discuss the clinical manifestations of whooping cough which are so well known to the medical profession. The unfortunate thing in connection with a clinical diagnosis is the fact that it is seldom made until the disease has advanced beyond the stage of greatest infectivity, and also beyond the stage where certain treatment may have been most effective.

For purposes of philosophical interest the frequency distribution of the interval of time elapsing between the first cough and the first whoop, the so-called catarrhal period, was ascertained by the writer in 1136 cases. In this series of cases the average interval was 11.5

days and the most common interval or mode was around ten days, however, a very wide range of variation extending from zero to thirty-two days was observed to exist.

In relation to the blood picture practically all investigators have found a leucocytosis and both a relative and absolute lymphocytosis in whooping cough. Of course these findings differ considerably with age, the seriousness of the disease, complications, etc., but in the majority of instances a more or less typical course is followed. During the incubation period there is little change, if any, in the blood picture, but with the onset of symptoms a leucocytosis with a relative lymphocytosis begins to manifest itself and then gradually increases up to the third or fourth week of the disease after which it slowly returns to normal. White blood counts as high as 175-000 with ninety per cent lymphocytes have been recorded but in a majority of instances the maximum white blood count ranges between twenty and thirty thousand with the lymphocytes constituting from sixty to eighty per cent of the total count.

Some observers feel that the roentgen-ray appearance of the chest is diagnostic of whooping cough. Others are more guarded in their opinion but feel that the roentgenologic examination is of great help in establishing a diagnosis. Pathologic changes associated with pertussis which differ in certain essentials from the generally accepted picture of chronic bronchitis have been observed. The lesion is described by Smith and his associates as consisting of a peri-bronchial thickening, which is most marked in the bronchial tree and especially in the mesial portion of the lower lobes. There is an accompanying enlargement of the peritracheal and peri-bronchial lymph nodes, which is not quite the same in distribution as that noted in bronchitis of other causation. In addition there is frequently a mottling of the lung shadow suggesting a beginning infiltration or bronchopneumonia. Some writers emphasize a steep slope to the diaphragm due to stimulation of the diaphragmatic branches of the phrenic nerves, which they claim occurs early in the disease, but this has been noted but rarely by other observers.

The presence of the Bordet-Gengou organism in the sputum of whooping cough patients, its relative frequency in the various stages of the disease, and its diagnostic importance has been the subject of considerable investigation. By the use of a modified Bordet-Gengou medium the B. pertussis can be grown and cultures usually reportd on at the end of seventy-two hours. During the catarrhal stage the B. pertussis may be obtained in a majority of cases, while in the following week the percentage is somewhat smaller and from that time on gradually decreases, so that after three or four weeks of the spasmodic cough the sputum of patients no longer contains the organism. At the Boston Floating Hospital positive cultures were obtained on thirteen children and one adult who never whooped. One boy 10 1-2 years old, came into this clinic as a whooping cough contact. He was old enough to cooperate and coughed voluntarily onto one of the plates, which, on incubation showed a pure culture of B. Pertussis. He had no symptoms at the time and did not even begin to cough until six days later.

The so-called Meyer's cough plate method is now in general use for obtaining cultures. This consists of inoculating the medium contained in a petri dish or similar aluminum container by having the patent cough directly into it at a distance of about five inches This method of obtaining cultures has proved superior to all others. Stained smears of sputum are not a reliable test for the presence or absence of B. pertussis, as B. influenzae is present in about fifty per cent of children's sputum and with this organism B. pertussis may easily be confused.

Agglutinins have been observed to appear in the serum of whooping cough patients during the third week of the disease, reacting their maximum during the third to the fifth weeks and subsequently gradually falling. Hence, complement fixation is of no importance in making a diagnosis at the beginning of the disease but is of importance later on in determining whether a cough, which is not clinically characteristic, is whooping cough or not. It would seem of partcular importance, as an aid in diagnosis, at that stage of the disease when most of the organisms have disappeared from the sputum, since at this time it is especially pronounced.

Experience, thus far, leads observers to feel that an early, efficient and practical bacteriological diagnosis can be made in a majority of instances and it should be established and used in the same way as the bacteriological diagnosis of diphtheria and various other infectious diseases is used.

The intradermal inoculation of whooping cough vaccine has been used for diagnostic purposes but with no uniformity of results. While a few claim to have found this a valuable means of early diagnosis, it is the consensus of opinion that this procedure is of no value diagnostically.

It would seem then, that the principle aids in making an early diagnosis of pertussis, are the presence of a relative and absolute lymphocytosis in the blood, the presence of the Bordet-Gengou bacillus in the sputum and the x-ray appearance of the chest. These together with the history of exposure and a cough, lasting in many instances longer than the common cold, should make it possible to make an early diagnosis in a majority of cases. Complement fixation is of no importance in the early stages, but after the third week is a valuable confirmatory test in doubtful cases. The intradermal injection of pertussis vaccine has proven of no value in diagnosis, nor do there seem to be any characteristic physical signs in this disease.

Of numerous complications in whooping cough those associated with the respiratory tract are by far the most important. Upwards of sixty per cent of whooping cough deaths are due to a complicating pneumonia. Gastro-intestinal disease is found in about ten per cent of the fatal cases and is of special importance among infants during the hot months of the year.

Convulsions have always been a distressing complication of this disease, a majority of such cases proving fatal. Cerebral hemorrhage, encephalitis, vague toxins, etc., have all been brought forward as the cause of convulsion in whooping cough, however, the frequent occurrence of a lowered calcium content in the blood and of an electrical hyperirritability of the nerves, leads many to feel that they are a manifestation of a latent tetany lighted up by the infection.

Considerable has been said as regards the relationship of tuberculosis and whooping cough. A majority of investigators feel that they may co-exist and each modify the course of the other, especially may whooping cough stir up a latent tuberculosis, as upwards of five per cent of whooping cough patients develop this disease. It has been a common observation that when tuberculosis occurs in infants with pertussis, it is usually of the miliary form.

Some investigators have found evidence of some myocardial damage during an attack of pertussis but the observations of Ledbetter and White indicate that this disease has no permanent damaging effects on the heart.

With the exception of a few miscellaneous forms of therapy, the treatment of whooping cough may be considered under five main groups. The first group includes the various drugs used systemically; the second, the various drugs applied locally to the nasopharynx and larynx; the third group includes ether therapy; the fourth, vaccine therapy and the fifth includes the various forms of applied physiotherapy.

A great variety of drugs have been used in the treatment of this disease. Among the preparations spoken of most prominently for systemic use are the following:

Antipyrin in moderate doses.

Bromides in rather large doses.

Adrenalin, in one to three minimum doses.

A twenty per cent solution of Benzyl Benzoate by mouth.

Various forms of quinine preparations.

A thyme preparation in doses of one to four drops.

Phenobarbital (luminol) in doses of 0.5 grams daily.

Atropine by mouth in rather large doses.

A number of investigators feel that in the control of the spasmodic cough, antipyrin fortified by bromides, has given the most encouraging results.

Of the drugs used locally a two per cent solution of silver nitrate seems to have given the best result. An iodin-phenol-glycerine mixture and a ten per cent resorcinol solution in a mixture of one part glycerine and seventeen parts water, have both been used with beneficial effects.

The intra-muscular injection of ether in the treatment of whooping cough was first introduced in 1914. Since this time this type of therapy has been used by a large number of physicians but with no agreement as to its value. While some claim it has given more satisfactory results than any other form of treatment, others have found its use, not only of doubtful value and uncertain action, but extremely painful, especially to young children, giving rise to necrotic areas at the point of injection in a number of instances.

Vaccine therapy in the treatment of whooping cough has been heralded by some as the most rational and effective procedure at our command, others have been luke-warm in their praises of this remedy, while others have found it most disappointing. In general the results from vaccine used prophylactically have been far more encouraging than those observed after its therapeutic use.

No doubt much of the discrepancy noted, results very largely from such factors as the age of the vaccine, the size and frequency of the dose, possibly the difference in types of the organism utilized in making up the vaccine, stage of the disease at which treatment was started, methods of administration, etc. It is very noticeable, as a number of observers have pointed out, that most of the favorable results have been in the hands of those men using freshly prepared vaccine of known high antibody productivity in large and frequent doses.

At the Boston Floating Hospital it was found that ordinary stock vaccines, as well as most of the strains which they obtained from actual cases, showed a low agglutination titer, experimentally. In a certain few cases, however, an organism capable of producing strongly positive agglutination in dilutions as high as 1-3200 was obtained. Using one of these strains, a vaccine was freshly prepared about every two weeks at this clinic and so concentrated that the final emulsion contained about eight billion organisms per cc, and represented about twenty-four times the efficiency of a stock vaccine in producing antibodies in the blood serum. This vaccine was used both prophylactically and therapeutically. Some benefit was noted from its therapeutic use but comparatively little after the third week. The results from its prophylactic use were observed to be somewhat proportional to the stage of the incubation period at which it was started. When given early, complete protection resulted, but when given later in the incubation period, the disease was aborted and ran a milder and shorter course.

Some investigators have observed more satisfactory results from a mixed vaccine, including besides the B. pertussis, staphylococcus, streptococcus, pneumococcus and the influenza bacillus.

The use of the roentgen-ray in the treatment of pertussis is a relatively new development but enthusiastic reports have already been published and some feel that this therapy has passed beyond the experimental stage. A very definite improvement has been observed in a large majority of cases thus treated, in a time interval ranging from a few hours to a week or ten days.

At the Boston Floating Hospital where x-ray therapy has probably had its widest application in pertussis, they use as a routine, the ordinary high tension transformer, with a rectifying device, a coolidge tube, and a frequency of 60,000 volts. They keep the tubes set at four milliamperes, use one mm. of aluminum as a filter and keep the tube distance constant at twenty-eight inches. The method of treatment consists of exposing the chest, first anteriorly and then posteriorly, for three times on alternate days. The dosage ranges from eight to twenty milliampere minutes. After one week a second series is given to those patients in whom improvement is not entirely satisfactory.

Thus we note that in the treatment of pertussis a great many remedies have been used, but with no uniformity of opinion as to their value. It seems generally conceded that drug therapy is at best, only symptomatic and palliative. Ether therapy has not established itself. Results from vaccine used prophylactically would seem to encourage its continued use, but therapeutically, its value is open to considerable doubt. Large doses of freshly prepared vaccine given early in the disease and at frequent intervals can have an alleviating effect, but its use at an advanced stage of the disease would seem irrational since it has given no practical results. X-ray therapy is under trial and looks encouraging.

In the light of our present knowledge of whooping cough, what measures should be taken in the prevention and control of this disease? The cooperation of physicians, public health officials and the lay public is essential. A few of the many recommendations urged in this connection are as follows:

1. Education of physician's and the public as to the frequency and gravity of whooping cough.

2. Unification of the quarantine code and shortening of the quarantine period to not longer than four weeks after the onset of the cough, thus enabling the enforcement of isolation, which under our present plan is quite impracticable.

3. Early diagnosis, by the means of the various aids now at our command, with subsequent early isolation of the case.

4. Immunization of all exposed persons and especially children under five years of age, by the use of prophylactic vaccine.

5. Establishment of special hospitals and dispensaries for the routine treatment of pertussis.

With the carrying out of these measures, both the morbidity and the mortality from this disease should be materially reduced.

From the foregoing consideration of the present status of whooping cough it is evident that our present knowledge of this disease is not only limited, but much of it is very indefinite and uncertain; ignorance and half knowledge still obscure our vision. Certain facts have been quite definitely establisted but much of the information we desire is tsill a matter of opinion, deduced from results which show a marked lack of unanimity. This disease requires much more careful study than it has yet received . Intensive clinical laboratory and epidemiological investigations should do much to remove our present wide-spread ignorance of this disease, the seriousness of which is so aptly expressed by Anders in his "Practice of Medicine," when he states: "The gravity of pertussis is scarcely appreciated either by the general physician or the public, and there is more criminal neglect in connection with whooping cough than with any other disease."

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DISCUSSION.

Thomas Marks, Lexington: I don't know when I have enjoyed two papers more or have been fortunate enough to hear two such papers. I think we have gotten the doctors fairly well educated on this subject, and now me must turn, through our public health, to educating the families and the parents.

As Dr. Pritchett said, he looks upon the physician as the first line of defense, and as Dr. Allen and I were talking while we were coming here this morning, we decided it was the physician and the home equally who were the first line of defense. This was brought out to me very strongly by the fact that I have lost two three-weeks' old infants with whooping cough, due to the fact that coughing children in the family have come to the hospital to see the new baby and the mother has sent for them and allowed them to come, knowing that they were coughing. There were two deaths that were absolutely avoidable.

I don't see any reason, in the present status of diphtheria, for ever having any more fatality from that disease if we can educate the people that it is the pre-school child in whom the toxin-antitoxin is of the most value. Diphtheria after the age of six is not such a terrible thing. The child comes to you complaining of sore throat early in the disease, or you notice by his actions that something is wrong, and a physician is consulted. It is the child under the age of three, between the ages of twelve months and three years, who develops diphthera (and the mother pays no attenion to it for three or four days) in whom it is too late for any method to save the child.

I don't myself look upon the Schick test as absolutely reliable; it has not been so in my experience with it; it is almost reliable, but it is not absolutely. In giving toxin-antitoxn I have followed Dr. Park's method of not doing the Schick test in the beginning, but giving the first dose of the toxin-antitoxin and if there is no reaction on the arm when they return for the second dose a week later, I look upon that child as immune, but do a Schick test on him later on. If there is a reaction on the arm at the end of the week, I continue the treatment.

I have these patients come back at the end of six months, instead of three months, to be given the Schick test. I understand a certain per cent of them become immune between the third and sixth months who are not immune at the end of the first ninety days.

In the past year, in Fayette Couny, our most distressing disease was measles. We had untold numbers of cases, and practically all of them were severe. Almost all of my serious complications came from measles. One case in particular had hemorrhagic measles, then developed a double mastoid, and then an ostemyelitis of the rib, and then pneumonia, empyema, and finally had an abscess in the buttocks and one on the arm and one in the ankle. This child also had pericardial effusion. We nursed her along during a more or less palliative treatment after the mastoids had been done until she was able to have her empyema operation, and by the grace of God she got well; we don't understand yet how she got well.

I have had no experience with the convalescent serum. I have not been getting the serum early enough to really immunize the patient. I do think a lot is going to be done along that line.

The Dick test and the scarlet fever serum has been rather disappointing in my hands, both the immunization and also the giving of the antitoxin. I think I have made lots of them much sicker than they would have been if I had left them alone.

With respect to whooping cough, as far as drugs are concerned, I look upon luminal as the most successful of all drug medication. A child a year old can tolerate from a quarter to a half grain of luminal every three or four hours without any appreciable hypnosis.

J. W. Bruce, Louisville: I don't know when it has been my privilege to hear two more interesting and well rounded papers than those which we have had the privilege of hearing this morning. Certainly they are of tremendous importance.

First, with regard to whooping cough, this is a disease that we have certainly neglected; we have failed to report it at times, and we have failed to maintain proper quarantine of children who have the disease. It runs such a long course that it is difficult to make mothers keep their children quarantined properly, and I think that is probably the reason it gets so widespread.

The danger, as Dr. Jones has pointed out, is not so much to the school child who contracts the disease in the first place, and brings it home, but to his little brothers and sisters who catch it from him; they are the ones who have to be protected.

As to the diagnosis of whooping cough, Dr. Jones has covered that ground very well. In my own experience the leukocyte count has not been of a great deal of value. Two years ago we were having a great deal of whooping cough in Louisville. I ran a series of about forty cases, taking the total white count and differential in determining the diagnosis. I took as an arbitrary limit, anything over 15,000, with a lymphocyte count of sixty per cent as being diagnostic of whooping cough. It seems to me that those figures are correct in diagnosing between whooping cough and bronchitis. I found the counts did not run over those figures until about the tenth, twelfth, or fourteenth day, at which time the child was whooping and the diagnosis could be made by any grandmother. I found the blood picture, therefore, of very little help.

The sputum examination I know nothing about, but it seems to me if that could be perfected, it would be a lifesaver. The sputum in the early days is loaded with these organisms, and if they could be identified, it would be of the greatest help.

The x-ray examination as a diagnostic help, it seems to me, would be of rather limited value because the difference in the picture of whooping cough and bronchitis at that early stage would be a very difficult one to tell with any certainty.

Regarding treatment, as Dr. Marks has pointed out, luminal is effective. It seldom causes any trouble; it occasionally causes erythema which disappears when the luminal is withdrawn. I have never had any bad results from it and it is of a great deal of help in controlling cough.

The ether and olive oil injections by rectum are very good. It frightens the mother because the child begins to exhale ether and she thinks the child will develop pneumonia. The ether injections intramuscularly are very painful and sometimes there is a danger of slough.

The x-ray treatment I have used quite extensively, or did use, and got very little results from it. There is a great deal of difference of opinion as to the value of this thing. The Boston men consider it very valuable; on the other hand, such men as Faber of San Francisco, find it of no value at all. My own experience has been that in children less than two or three years old, it is of some use when used fairly early. In older children I have gotten no results whatever with it.

Regarding diphtheria, I believe firmly that every child should have the diphtheria toxin-antitoxin on its first birthday, or as soon thereafter as possible. There is no use in giving the Schick test before the fifth or sixth year, because the chances are the child is susceptible, particularly children living in rural communities or small communities. After that time, the probability is that the child has acquired a natural immunity so that the Schick test should be done before the toxin-antitoxin is administered. In all cases, the Schick test should be repeated three or four or five months after the toxin-antitoxin has been given. In ninety per cent of the cases immunity is produced by those first three injections, and in practically all cases in the other ten per cent on second injection.

Regarding scarlet fever, I do not want to be thought of as a pessimist with respect to our therapeutic armamentarium, but possibly it is because we compare the scarlet fever remedies with those of diphtheria that we are not so enthusiastic over them as we would like to be. First regarding the Dick test, it is a well known fact that you frequently find a positive Dick test in a person who has had scarlet fever, while we know that second attacks of scarlet fever are practically never seen. On the other hand, you frequently find a negative Dick test in a child who within a few weeks comes down with scarlet fever. Jean Cooke, of St. Louis, within the last few months has published work which I believe explains this. He feels that the Dick test is really more of an anaphylactic phenomenon than a test for the presence of antitoxin in the blood. He injected scarlet fever toxin, the same preparation which we are recommending as a prophylactic dose, and within a week after his injection he got negative Dick tests. However, it was four, five or six weeks before he was able to demonstrate antitoxin in the blood, showing that the Dick test is not an accurate measure of antitoxin in the blood.

Regarding the use of antitoxin itself, in mild cases I firmly agree with Dr. Pritchett in saying that it will probably do more harm than good, because I have seen very terrifying reactions following the use of scarlet fever antitoxin. I will say that within the last year it seems to me these reactions have been fewer and not so severe; it may have been just luck. On the other hand, I attribute it to the fact that the manufacturers have been producing a better serum.

The prophylactic use of antitoxin, that is the injection of a small dose of antitoxin, to prevent scarlet fever, I should like to condemn, because in the first place the immunity lasts only a short time, three or four weeks. You are just as apt to get reaction as with a large dose, and in many cases it does not give protection even for three or four weeks. So I can see no good in it.

The prophylactic use of the various toxins and vaccines for the prevention of scarlet fever that are on the market at the present time we will have to hold judgment on. At various medical meetings in the last year or two, I have made it a point to ask pediatricians from different parts of the country what they are doing about scarlet fever prophylaxis, and they all say, "We are waiting. We can't recommend it wholeheartedly as yet."

Regarding measles, I should like to put in a word about the value of the convalescent serum as a prophylactic. Regarding the therapeutic use of it, I have limited experience and have not been impressed with its value. As a prophylactic, however, it is certainly wonderful. If you give three or four cc.'s of convalescent serum before the sixth day after contact, the child will in all probability have a mild case of measles. That is much better than to have none at all. If it has a mild case of measles, it probably develops an active immunity which will last for life. Of course the duration of that we don't know yet, but that is the supposition.

It seems to me that all children less than three years old should receive this prophylactic inoculation of measles convalescent serum after contact. Suppose a child comes home from school having caught measles at school, where they catch everything, and has three or four little brothers and sisters; if you give those little brothers and sisters a small dose of convalescent serum up to the fifth or sixth day, they will have a mild case. We all know that the mortality from measles practically always takes place before the fifth year.

J. S. Lutz, Louisville: I don't think I have ever enjoyed two papers more or have heard two more timely papers than the two we have heard today.

What I want to stress more than anything else is the fact that we are not having diseases reported to the health office, especially scarlet fever, whooping cough and measles. Why? Just as Dr. Pritchett says, there is absolutely no sense in quarantining the family for six weeks for a case of scarlet fever. If a child is going to develop scarlet fever, it has been my experience that he is going to develop it anywhere from three to nine days, and if they don't develop it in that time they are not going to deveolp it from that contact. You are quarantining a whole family, keeping children from school, when there is no reason to do it. It is time for our health officers, our health organizations, to make new rules of quarantining. They are observing today the same old rules of quarantining that they did ten, fifteen and twenty years ago.

In the reporting of whooping cough, I know in my community there is not one case out of fifty reported to the health department. The doctor probably sees one case in the family, then all the rest of them come down with it but they never call the doctor back for those cases, and he can't report a case unless he sees it. That is the reason you are never going to get very good statistics on the reporting of whooping cough.

I think whooping cough is one of the most dangerous diseases, and as Dr. Jones reported, the death mortality is alarming. I think there is scarcely any other disease that needs as great a war made upon it as whooping cough.

I think quarantining for whooping cough is one thing we should enforce more than we do, but especially do I think we should have a modification of our quarantining for scarlet fever.

Sam Marks, Lexington: I have just two points to bring out. One is to put on record a case of meningismus that I saw last summer in measles. The boy was nineteen. He came home from school, and after a very slow, prolonged prodromal period he developed acute measles. He was in a doctor's family who were very close friends of mine. On the fourth day there was a wedding in the family. While they were in the midst of the preparations for the wedding, I was hurriedly called out, and found the boy had had a convulsion and was unconscious. We didn't know what he had. There were several doctors around and we looked him over. He had no focal signs at all. His optic discs were a bit edematous. Dr. Morris came over from Cincinnati and saw him, and he decided that it was so similar to meningismus he had seen in mumps that he would have to call it that. He had never seen a case, and had no record of it, but on looking it up he had one case that had been reported. The boy recovered entirely. I should like to present this as one of the complications undoubtedly of measles.

The other point is to pay my respects to the serum for scarlet fever. I had a personal experience with it two years ago in a very violent hemorrhagic attack. I was given serum about 6 to 8 hours after the rash developed and in forty-eight hours I was practically well.

Virgil Simpson, Louisville: I have been asked by Dr. Pritchett to discuss more particularly the nature of reactions in dealing with serums and vaccines than the clinical side of the management of these conditions.

His paper, judged by the very excellent standard laid down by your President, is **orthodox**, and I think but little could be said except in amplification.

I prefer the term **transmissible** rather than

contagious; I think it is a more expressive term, a term of larger comprehension, and enables us to escape the narrower concept that these diseases are contracted by immediate contact.

Our profession may be divided as to the use of vaccines and serums into several groups, and three of these contribute but little to the growth of our knowledge of specific therapy; those who are ultra-enthusiastic in their use, another group that have used these agents in a small way and ignorantly and have abandoned them because they said they got no results, and a third group who have been doubting Thomases from the beginning.

Part of our confusion concerning these substances has arisen because of a multiplicity of terms. In reading the literature, one will find a number of words used concerning the meaning of which even the dictionary helps but little so far as the actual application of the terms is concerned, and as a consequence one is left somewhat bewildered as to just what is meant by the various authors. I think it will simplify the matter in your minds if you will look upon all substances connected with immunization, susceptibility, the actual development of disease, and what not, as grouped under two headings. On the one side, those things which produce either the disease or manifestations of the disease. They may be called antigens or anything else you care to call them; it makes little difference what name you use so long as you understand what it means. Here is a group of things that are foreign to the human body and when introduced into the body will produce certain results, and these results may be couched in terms of body reaction, nothing more, nothing less. It makes no difference whether it is a vaccine you are using, whether it is the disease itself that is developing, it makes no difference whether the organisms that are introduced are dead or living, they are agencies that are foreign to you as the host and that are producing certain definite responses in your body. That is one group.

The result of the introduction of these substances in the body is the production of the other group of things about which there is equal confusion as to terms, namely the antibody substances. These are formed in consequence of the introduction of the things that produce the disturbance. If one has typhoid fever, in the effort of the body to combat the disease there are things formed to effect a recovery. Natural processes, reparative processes of the body, are making these substances. Let us call all of them antibodies as a comprehensive name. Let us understand that fixateur, preparation, immune body, substance sensibilisatrice are all terms meaning the same thing in immune serum. Let us understand that it makes no difference, so far as the results are concerned, whether they are antitoxic or bacteriolytic in nature, whether they are precipitins or lysins, they are all antibody substances. They are things which the body of the individual, the host, the person who has been subjected to the disease either by introduction artificially or by contracting it, has entered into the construction or manufacture of in order to enable him to combat that disease.

Vaccines produce three kinds of reactions when introduced: First, local, which is purely a condition which results in the tissues, in which the vaccines are introduced, because of mechanical plus perhaps chemical action. The latter the result of substances that have been used in preserving the vaccine. Second, focal reactions, which are the responses that occur in diseased tissues. For example, consider gonorrhea; in a chronic, latent process in which there is an inability on the part of the clinician to find the organism, yet the introduction of the vaccine will light up the condition, activate it, and the organism may be recovered. Third, systemic reactions from vaccine introduction, temperature, chills, malaise, myalgia. These are the responses of the system at large to the insult, nothing more, nothing less. It makes no difference whether the organisms in the vaccine are dead or whether they are living, they are foreign substances, protein in nature, and the body responds to the insult, and in that response makes the antibody substance corresponding to the particular type of bacteria that has been introduced.

In the case of serums we have an entirely different sort of agency to deal with. When a vaccine is used the patient is called on to manufacture his own antibodies; when a serum is introduced one is dealing with a substance that contains these antibodies already formed. The horse, for example, is drafted to make the antitoxin for diphtheria; the toxin is introduced and he responds, he reacts, and he makes the antibody. The horse is bled, the serum sterilized and introduced into the child. A serum containing ready-made antibody substances. His body is not called upon at all, except the heart, to distribute it; he is simply the recipient, the host of substances that are already made, instead of calling on his body to make these things.

In the case of secondary responses from the introduction of serum, they are different from those of vaccines and can be grouped under two headings, anaphylactic phenomena and serum sickness or allergy. Anaphylaxis is a term applied to a group of symptoms that occur only when and if a foreign protein substance has been introduced into an individual as an initial dose, and then a second dose two, three or more weeks later is given of the same protein.

Following the first injection nothing, clinically determinable, takes place. However, a process of sensitization is occurring which require from seven to twelve days for completion. After the sensitization process is completed a second dose of the same foreign protein is followed by amophylactic reaction, erythema, urticaria, low febrile state, gastro-intentinal upsets —if the reaction is mild, angio-neurotic edema, asthma, cerebral excitation, pyrexia, nausea, vomiting diarrhea, punctate hemorrhages of any or all of the internal organs—if severe.

Serum allergy on the other hand, is a thing which comes on without regard to there having been an initial dose of the foreign substance introduced and though the symptoms are in a sense largely similar to those of anaphylaxis, the sequence of the production is different. It does not depend upon an antibody—antigen reaction which is the fundamental of anaphylaxis. Both are evidences of hypersensitiveness but anaphylaxis presupposes an incubation stage, while serum allergy does not. Anaphylaxis is the expression of a second administration of a serum, serum disease may occur in consequence of a first administration. The phenomenon of desensitization may be established in anaphylaxis, it is absent in serum allergy.

G. G. Thornton, Lebanon: I just want to say a word about these papers. I was very much impressed and felt that Dr. Jones expressed very accurately my observations about the seriousness of whooping cough as I have seen it in my practice.

The mothers have been calling whooping cough a mild disease and stating that it was better for them to have it early because they had to have it anyway.

If you will read the Bulletin of Vital Statistics in Kentucky, you will find that measles and whooping cough kill about ten times as many children in Kentucky annually as scarlet fever does. I am persuaded that we don't know so very much about scarlet fever as we sometimes think we do. It has been my misfortune to see a mother twenty-two years of age at home with a baby six weeks old, with no exposure, no cases of scarlet fever in the entire community, come down with scarlet fever and die in fifty-two hours. Neither the baby at her breast nor a two-year-old child developed scarlet fever, and no other children in that community developed scarlet fever. Scarlet fever sometimes is so mild that we can hardly recognize it.

Again, in the same epidemic, we may have a case so violent as to produce death within a very few days.

I think it is important to impress upon the mothers the great seriousness of whooping cough and measles. My observation has been that convulsions in whooping cough practically always r sult in death under the age of six months. - My further observation has been that I have seen only one case where convulsions had developed before treatment, where fortunately, the case recovered.

Dr. Jones says the fatality was thirty per cent under the first year. I believe that the fatality in my experience where they have not been treated and convulsions developed and pneumonia developed under six months of age, is nearer ninety per cent. Where no complications exist, under six months of age untreated, I believe the mortality from whooping cough is fifty per cent.

I believe Dr. Jones said that we had one peak period in the spring and one in the summer. I don't believe that peak period in the spring is because of the lowered vitality, but I believe it is because of the fact that in the months of March and April we have more pneumonia, and at that period we are more apt to have pneumonia develop in these cases.

I have not heard any papers that seem to me to be as near to the truth and as valuable to the general practitioner as these two papers.

J. G. Bosley, Richmond: Last evening, as health officer of Madison County, I was called to the north end of the county to investigate some scarlet fever, with this history: On Friday, one of the children in the school had a headache and backache and flushed cheeks. That child returned to its home and the physician was called on Sunday and pronounced it scarlet fever. If I am right, I want to know it; if I am wrong, I want to know it. I quarantined that family except the bread winner. I have closed that school until Monday awaiting further developments. And I want to know whether it is necessary to fumigate that building. That has not been done. We are here to find out things and I should like to know if that is correct.

V. G. Kinnaird, Lancaster: I should like to say just a word about closing the schools. I am not in favor of closing the schools because of one case of scarlet fever or one case of diphtheria. If a child develops it at school, all the other children have naturally been exposed to that child. If you close the school and send the children home, you have no control over them whatsoever, they go to picture shows and Sunday School and picnics and everywhere else. If you have them in school, the teachers and health officers can help them. If the child is sick you can take care of him.

J. H. Pritchett (in closing): I am very glad indeed to have heard Dr. Jones' most valuable paper, it is a very instructive one.

To answer Dr. Bosley's question, it is my belief that fumigation is of no great value. I think that plenty of fresh air, sunlight, scrubbing the floors, bodily cleanliness, will do as much, if not more than our former fumigation of the olden days. I remember the time when we used to stop up the keyholes in the doors, pull down the blinds at the windows, and put in formaldehyd candles. I think that has been almost universally accepted as being of no great value. Plenty of fresh air, sunshine, scrubbing the floors, and the patient as well, if necessary, will do more toward keeping infection down.

As to closing the schools, fortunately scarlet fever is not a mass disease, but it may be spread about, so it is a good plan and in some instances thoroughly necessary to stop school for three or four days. Examine the throats of all the contacts, and if necessary keep them out for a period of one week or more.

FIXING THE RESPONSIBILITY FOR CORRECTIVE WORK WITH SCHOOL CHILDREN.*

By Floyd P. Allen, M. D., Lexington.

In the last decade community health programs have greatly expanded in their service to child welfare. This has come about mainly as a sequence to the development of preventive medicine. We are coming to realize more and more that if constructive health is to be maintained, preventive measures must be instituted at an early age. The large number of school beginners with physical handicaps is striking evidence that such measures should have been carried out with these children in preschool life. Even though health workers are striving to attain the goal where children will meet standard health requirements before they enter school, this accomplishment is yet far from being attained. It will probably be for some time to come that large numbers of children will continue to begin their school career possessed of handicaps to their normal progress. It is of paramount importance then, not to further delay finding these handicaps and in applying the necessary corrective procedures.

In this discussion we are to be concerned in departures from the normal in school children and in fixing the responsibility for procedures of a corrective nature. The Bureau of Maternal and Child Hygiene of the Kentucky State Board of Health advocates as standard health requirements for school children that they be free from remediable defects, be consistent in the practice of proper health habits, that they be immunized against smallpox and diphtheria, and be capable of passing a grade in school.

Some idea may be gained of the extent to which the more common remediable defects are found in grade school children from this list:

Postural—more than 75 per cent.
Dental—more than 50 per cent.
Underweight—more than 30 per cent.
Tonsils—more than 30 per cent.
Visual—more than 10 per cent.
Pulmonary—more than 5 per cent.

To accumulate data of this nature, revealing wherein these children depart from a normal physical status, is the role of school health workers, but it is of little importance unless efforts are made to bring about the corrections of defects which can be and should be remedied. Although parents are primarily involved in caring for these physical handicaps, other agencies must share the responsibility in most instances.

Among the remediable defects commonly found, four are readily determined in the school room. Deficiencies in weight and vision are found by measurement while those pertaining to posture and nutrition are revealed by inspection.

If a careful physical examination does not disclose organic disease as the basis for underweight, the cause in most instances is to be found in faulty health habits. Most of the children with poor posture or who are undernourished are underweight children. In the absence of organic disease and with due allowance for familial tendencies, the underweight child with his dependent defects is a subject for care and guidance in the home and the school.

The course to be followed in the correction of visual defects seems obvious, and yet some parents when left to their own initiative will send away for glasses or go to some place where they can be procured cheaply. We have found children with glasses from such sources who were actually more handicapped than benefited by them. We should all feel it our responsibility to advise that children with defective vision be examined under drops by an ophthalmologist, for more harm than good may result from other methods.

There are shortcomings met in procuring desired results in the correction of tonsillar and dental defects and in other conditions requiring repeated attention.

All of us should realize that as a part of our obligation in furthering the cause of preventive medicine we must stress with parents the importance of rendering timely service which will contribute to the physical welfare of their children. It is at this primary source that ignorance, indifference, fear, prejudice, and the like are curbing constructive medical service to many children. The council of the physician which enlightens these people, disperses their fears and solicits an interest in removing obstacles to normal physical progress has far reaching effect.

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*Read before the Kentucky State Medical Association, Richmond, September 10, 11, 12, 13, 1928.

Although the shortcomings to corrective work are most frequently met in the home, they are also encountered at times with the medical profession. When the child is taken to the physician for some condition noted in the school health examination it then devolves upon the physician to decide if treatment is necessary . The child is in reality referred to him for examination and for his advice to the parent as to what should be done. The child is referred for an apparent or suspected defect worthy of more detailed examination or study. If, in the physician's office the examination be superficial and pertinent factors be not considered, an opinion may be formed which minimizes the need for intervention. If this practice be continued it will likely be unjust to some child and it will tend to develop a loss of confidence in the school medical examiner. It must be admitted that he tends to become a little overcautious in his decisions but the school medical examiner does not mark down ever pair of hypertrophic tonsils as septic nor every undernourished child as tuberculous.

Except for indigent children, it would be unethical to advise that they be taken directly to the specialist. It has been our experience, however, that when the responsibility takes the course from school to parents, to family physician, corrections are not as likely as when followed from school to parents to specialist .

It is not probable that we can look to the time when the efficiency of physical corrective work with school children will be improved through more direct channels. Certainly the first source of responsibility will remain fixed in the home and the second logical source is with the medical profession. It is rather that we must look to a better correlation of the agencies concerned in this work. Apart from the obstacles met in the home, which have been already mentioned, there is need for further guides as to just what constitutes departures from the normal which warrant correction. With these guides agreed upon by physicians, specialists, dentists, and school medical examiners, variances, friction, and confusion will lessen and instead more will be accomplished in behalf of the children.

We cannot leave this subject without brief consideration of the mental side as it applies to the health welfare of the school child.

Those of us who are interested in promoting child hygiene realize that its foundation is built on knowledge and common understanding which are acquired in home and school. Health education is essential. In applying it our aims are to develop a citizenship physically more fit and with a proper health conscience acquired through a modern knowledge of personal health and in safeguarding group health. The child of today is the parent of tomorrow, so to speak. If health education is promoted with this child as it should be, he will derive the proper attitude toward the prevention of disease and the maintenance of a normal health status. His parents may, because they lack enlightenment, be unfair to him in this respect, but to *his* children he will not. So, attitudes and interest will change as modern knowledge and understanding of health matters become more common. Then it should follow that the incidence and mortality from preventable diseases will be greatly lowered; infant mortality will be forced to much lower levels; the prevalence of the degenerative diseases will be gradually reduced; total mortality rates will decline at a greater rate. The logical places for health education are in the school and the home, but the school must still bear the brunt of the responsibility.

The school child group presents a real task in corrective work which should have been well under way in pre-school life. Physical defects need remedying nearer to the time of their beginning; proper health habits and health knowledge are essential to individual and group health welfare. The greatest opportunities in preventive medicine are those found in promoting the health of our children. It is constructive and fixes a responsibility on the home, the school, the medical and dental professions, and the health department.

DISCUSSION.

A. T. McCormack, Louisville: Dr. Allen's paper is of great importance. The foundation of the practice of medicine of the future is being builded today in the examination of the school and pre-school children. For centuries this avenue of approach to the confidence of the public has been avoided by the profession. A great pope many years ago said that if he could have control of the child until it was ten years of age, all the powers of hell could not prevail against him in the control of that child's destiny here and hereafter. If the health officer while acting as school physician can secure the cooperation of the practicing physicians of the state and the community in which he lives, the medical profession can never be prevailed against as the factor that is to control the health and lives of our people.

If the examination by the school examiner or health officer is superficial and misleading, if he is careless in his work, it necessarily reflects upon the entire profession. However, in the majority of instances he is dong the best he can. He finds a case that, in a necessarily hurried examination, warrants him in recommending to the parents that that child go to the family physician. If the family physician assumes the attitude of saying, as has been the custom far too frequently, when we are criticizing or considering a tentative diagnosis made by somebody else in our community, "That amounts to nothing," or if he makes a more superficial examination and still says it amounts to nothing, he is not doing anything to secure the confidence of that family or to build up their belief in scientific medicine, but if he makes a real examination and finds, as he frequently will, that the suspicious evidences do not warrant any corrective procedure, or if he makes a real examination and is able to demonstrate to the members of the family that this is a condition that requires the scientific knowledge of a physician or the services of an additional expert, he has then made a real contribution to the confidence of that family in scientific medicine.

On the other hand, if we make these examinations each year during the common school, high school and college period, we have built up the desire, yea, the demand, if they are made properly, on the part of the developing student with his or her developing mind for the necessity of such examination throughout life.

It is from this viewpoint that I want to emphasize the importance of Dr. Allen's paper. The examination of school children in Kentucky in the last year has exceeded our fondest dreams of a few years ago. The correction of defects in many counties where the members of the County Medical Societies are giving their earnest cooperation to the health departments, has been in the neighborhood of eighty per cent. This is a remarkable record. It has not been excelled anywhere. If we can continue to do this, we can assure to ourselves and our successors that role which the profession should have in the protection of the health and lives of the people who number themselves among our patients. We are assuming a control of their health habits and their lives that is our function. It should be the hope of the physicians of the future to have that larger clientele that will come to it because we have effectively done this great job which is going to be the foundation of the medical practice of the future.

WOMAN'S AUXILIARY NOTES

SIXTH ANNUAL MEETING OF THE WOMAN'S AUXILIARY TO THE KENTUCKY STATE MEDICAL ASSOCIATION, RICHMOND, SEPTEMBER 10-13, 1928.

Registration

Total Registered 123
  Members 52
  Visitors 40
  New Members 31
Total Number of Counties Represented.... 43
  Number of Organized Counties....16
  Number of Unorganized Counties. 27

Representation of Counties.

Ballard	2	Laurel	2
Bell	1	Lawrence	3
Bourbon	2	Lincoln	1
Boyd	1	Livingston	1
Boyle	3	Lyon	1
Breckinridge	1	McCracken	2
Bullitt	2	Madison	14
Daviess	5	Marshall	1
Fayette	3	Marion	2
Franklin	2	Montgomery	1
Garrard	3	Muhlenberg	1
Graves	1	Nelson	2
Greenup	3	Oldham	3
Grayson	1	Pike	1
Hardin	2	Pulaski	3
Harlan	2	Scott	1
Harrison	2	Shelby	1
Hopkins	3	Taylor	1
Jefferson	27	Union	2
Kenton	3	Warren	1
LaRue	2	Whitley	4

Among the visitors were: Mrs. Frances Sage Bradley of Washington, D. C. Also, Mrs. D. P. Curry and Mrs. L. O. Keen from the Canal Zone.

The Woman's Auxiliary to the Madison County Medical Society has organized and paid dues for fourteen members, but the names have not yet been sent to the Secretary and Treasurer.

Among the new members who paid their dues at this meeting are:

Mrs. J. D. Whiteacker, Cannel City.
Mrs. J. H. Pritchett, Louisville.
Mrs. R. Julian Estill, Lexington.
Mrs. A. W. Davis, Madisonville.
Mrs. J. I. Greenwell, Bardstown.
Mrs. Blanche Blake, Louisville.
Mrs. O. P. Miller, Louisville.
Miss Mary E. Miller, Louisville.
Mrs. J. B. Shacklette, Louisville.
Mrs. B. K. Memple, Covington.
Mrs. E. D. Mudd, New Haven.
Mrs. W. L. Ozment, Leitchfield.
Mrs. D. T. Travis, Eddyville.
Mrs. M. D. Sanford, Sadieville.
Mrs. W. N. Lipscomb, Lexington.

Mrs. E. T. Riley, Frenchburg.
Mrs. J. L. Hayden, Salem.
Mrs. W. Z. Jackson, Arlington.
Mrs. H. A. Hughes, Richmond.
Mrs. E. R. Fitch, Ashland.

Membership cards will be sent these members by the Secretary, Mrs. J. W. Sams, Crestwood. All dues should be sent to the Treasurer, Mrs. W. G. Salisbury, State Board of Health, Louisville.

JANE CRAWFORD MEMORIAL FUND.

Contributions amounting to $10.00 have been received for the Jane Crawford Memorial Fund. A short article entitled "Jane Crawford's Grave" is to be found in the March issue of the Kentucky Medical Journal. This fund was started as a means of promoting some definite development in the erection of a memorial to this heroic woman who submitted to the first operation known as "Ovariotomy."

Anyone wishing to contribute to this fund can send checks to the State Treasurer, Mrs. W. G. Salisbury, State Board of Health, Louisville.

SCRAP BOOK EXHIBIT

An interesting feature of the state meeting at Richmond this year was the Scrap Book Exhibit. Four counties, Harlan, Oldham, Jefferson and Graves, sent their books for exhibition. The two State Scrap Books were also on exhibition. The prize, a beautifully carved gavel was awarded the Graves County Book.

It is urged that each county auxiliary start a scrap book, keeping there all clippings of medical interest, also any interesting data pertaining to the profession and the happenings of the county auxiliary.

GOLF TOURNAMENT

The prize for the Golf Tournament at the state meeting at Richmond went to Mrs. R. Julian Estill of Lexington. The prize consisted of half a dozen iced tea spoons in the form of golf clubs, held in a small leather golf bag.

COUNTY AUXILIARY MEETINGS

It is urged that all auxiliaries send in reports of their county meetings and any other interesting data to be published in the Journal.

COUNTY AUXILIARY REPORTS

Bell County: Bell County was organized in June with three members. President, Mrs. C. F. Clayton; vice president, Mrs. J. G. Foley; secretary and treasurer, Mrs. Edwin Wilson.

At our second meeting, September 7th at Pineville, eight new members were added and all dues were collected and some work suggested.

Graves County: We submit the followinb report from October 1927 to September 1928:

We petitioned by letters and telegrams, our Governor, Senators and Representatives to use every available means and pressure against the Chiropractic and Ripper Bills.

We assisted in the Tuberculosis Seal Sale, both in the city and county.

We have cooperated with the public health nurse in the city and county, especially at Christmas, efficient and splendid work was done in the distribution of clothing, food, money and toys to the unfortunate and poor.

Fancy Farm Unit, through the Daughters of Isabella, furnished ten baskets and four dollars in cash, distributing to four families, sixteen children and ten adults.

Boaz Unit distributed much literature on Maternal and Child Welfare from the State Board of Health. Helped care for some poor and dependent of the neighborhood; donated material for First Aid School Cabinet, sufficient for whole school; sponsored cleaning of school toilets.

Have forty-seven Medical Historical Sketches of Graves County Doctors ready to be mailed in to Historical Chairman.

New officers elected for the incoming year are as follows: President, Mrs. Geo. T. Fuller; Vice President, Mrs. John L. Dismukes; Recording Secretary, Mrs. M. W. Hurt; Treasurer, Mrs. Carl Brown; Publicity Secretary, Mrs. W. L. McGehee; Historical Chairman, Mrs. L. L. Wright; Hygeia Chairman, Mrs. Stanley Mullins; Delegate, Mrs. W .S. Hargrove; Alternate, Mrs. Stanley Mullins.

We are ready as the Auxiliary of the Graves County Medical Society to entertain the Auxiliary of the Kentucky Medical Association.

We are sending by Mrs. Hargrove, our Scrap Book. We are sorry it is not fully completed. The Historical and Scrap Book Committees thought the meeting would be in October as it was last year.

Wishing you a pleasant and profitable meeting and sending our regrets that we cannot attend in a body,

MRS. M. W. HURT, Secretary.

Harlan County: We submit the following report:

No. members, 31; no. paid-up members, 29; no. new members, 5.

Receipts

Dues paid (2 paid for 1929)	$31.00
Silver tea	6.61
On hand end of last year	37.95
Miscellaneous	6.92
Total Receipts	$82.48

Disbursements

Health and Welfare Leagues	$15.00
Baums Home of Flowers	4.68
Circular letter	8.00
Mrs. M. M. Martin, commission for securing Hygeia subscriptions	10.00
State Dues	10.00
Stamps	1.00

Central Drug Co., correspondence cards	1.25
	$49.93
On hand September 1, 1928	$32.55

Jefferson County: In accepting my election to serve you as your President, I realized that I was undertaking a great responsibility; but one I liked. More congenial occupation I could never have found, nor more delightful companionship than that of the women with whom I have worked. There has been excellent cooperation, in consequence of which. we have accomplished acceptable results.

I need not remind you of our Membership Drive last fall, which was concluded by a luncheon at the Brown Hotel in honor of the new members. You will recall that the report of our excellent Chairman of Membership, Mrs. Hendon, was that we had more than doubled our membership during the drive. And since the drive, new members are added at each meeting.

It is with pride that I look at this group of doctors' wives, mothers and daughters, and realize that no where could higher type women be found. I am justly proud to be the leader of such women, but prouder still of the many warm friends I have made among you. This year has afforded us opportunities to know each other better and in consequence, like each other more. Thus, one of the prime purposes of the Auxiliary has been fulfilled—"The bringing together in social contact of our women interested in the medical profession," because of some man who is dear to them.

Dr. F. J. O'Brien's talk on "The Pre-school Child," was the outstanding feature of our December luncheon, a very helpful and worthwhile talk.

Our Executive Board Meetings have been held with regularity. They have been devoted to routine work, planning for the permanency of the Auxiliary and the safe keeping of records and valuable papers; preparing for greater service and organizing so as to be available for emergencies. Such an emergency arose when we were called on to defeat the Ripper Bill in the Legislature. Within two hours after the notice of the meeting reached me, our representatives were at the meeting, taking such action as they believed best protected the doctors and the public.

Miss Louise Morrell was the speaker at our meeting on March 23rd, at the Seelbach Hotel. We were interested and instructed by her lecture on "Health Laws of Jefferson County." So many changes in our Constitution were voted on at this meeting that the Constitution Committee is still at work on the revisions. The work has been delayed by the protracted absence from the city of Mrs. A. T. McCormack, who is a member of this committee. She has returned and the committee will have it in good shape for your consideration next fall.

In April, we and the Kiwanis Club sponsored a luncheon at the Brown Hotel followed by a pageant, "The Progress of Health Work in Kentucky during the Past Fifty Years."

Under the able leadership of Mrs. Boggess, our Historical Committee has gone forward in securing sketches of the lives of our well known Kentucky Doctors, whom we have "loved and lost a while." These are to be in triplicate,—one copy for the file in the fireproof building of the Filson Club, one is to be presented to the Jefferson County Medical Society, and the third filed in our own records. Different members of our Auxiliary are responsible for obtaining or writing these sketches, and will work throughout the summer to have them completed by next fall.

During this year, a greater sense of the permanancy of our organization has developed. We feel that we are meeting two needs, one, the amalgamating of the interests of the doctors here by practicing the motto of the "Three Guardsmen"—"ONE FOR ALL AND ALL FOR ONE," and the other a Scout Law, "BE PREPARED." We believe our organization now stands ready and willing to answer any legitimate call for service.

When it comes to summing up what we have accomplished this year, it is difficult to place the emphasis properly. As time passes great things seem so small; small things grow so great. Were I asked what I value the most highly, I should say without hesitation, the contact with you splendid women, the sharing of your interests and increasing purpose, and the keeping, always I hope, of your friendship.

MRS. HUGH NELSON LEAVELL, President.

McCracken County: The Woman's Auxiliary of the McCracken County Medical Society has enjoyed a most enthusiastic year of constructive work, with a membership of fifteen. The meetings have been held regularly on the second Friday in each month at the homes of the members, at which time papers have been given on current health topics. Miss Brown, public health nurse has appeared on the programs, also Dr. Edgar Reddick, who gave a most interesting resume of his year spent as Ship Surgeon on a big Pacific steamer, visiting all the large ports of the Orient. The Auxiliary was pleased at the enthusiastic reception given Dr. Myrtle Lee Smith, when she appeared before the students and teachers of Augusta Tilghman High School, with her general health lecture, and before the McCracken County Medical Society. The Auxiliary hopes to present other interesting speakers to various groups during the coming year and has been asked to use every effort to obtain a health clinic at Tilghman for this coming school year. The Auxiliary is planning more extensive work on health education and hopes to supply health teachers to appear each month on the programs of the various Parent-Teachers Leagues, in this way reaching a great number of people with vital information on interesting topics relative to child welfare. We also expect to cooperate in every possible way with the Public Health Leagues and are looking forward to a most interesting year.

MRS.| J. B. ACREE, Secretary.

Oldham County: The Woman's Auxiliary of the Oldham County Medical Society was organized only two years ago and to enumerate its activities would probably make a poor showing compared to other auxiliaries. However, we have had most enjoyable meetings and good fellowship. It is our endeavor to meet each need as it arises. We are collecting a Scrap Book and hope to gather useful and interesting data for the Medical Society, also things of historical interest for the state association. The attendance at our meetings has averaged eighty per cent of our membership. Our worthy president, Mrs. J. W. Sams, has the honor of being the Corresponding Secretary of the Woman's Auxiliary to the Southern Medical Association.

MRS. S. J. SMOCK, Secretary.

Perry County: The Woman's Auxiliary to the Perry County Medical Society was organized on July 11th, 1927, with 19 charter members.

It now has 33 with prospects of a few more in the near future. Our organization being quite young and our new Health Unit being very efficient we have done very little work, although we stand willing to help when ever we are called upon.

Our object the past year has been mainly to increase our membership, make things interesting for everybody and learn more about the state and national objects of our organization.

We put on a Hygeia campaign and secured subscriptions for 24 Hygeias and 23 Healthylands. Several of these are in schools.

In January, we were invited to the home of our President and were entertained by a Children's Hour, consisting of piano solos, vocal solos, recitations, and an interesting little health play. The children enjoyed this immensely and the parents were pleasantly entertained.

We had a little diversion from our regular meeting in February in the form of a valentine banquet at the Combs Hotel, inviting the Medical Society as guests. A very attractive program had been arranged and the doctors enjoyed it so much they hoped we would repeat it soon.

At our May meeting the following officers were elected: President, Mrs. J. S. Gilbert; 1st Vice-President, Mrs. G. B. Wheeler; 2nd Vice-President, Mrs. J. M. Ray; Secretary and Treasurer, Mrs. N. G. Riggins. These officers were installed in June with the Caduceus March.

At our August meeting the President suggested we meet quarterly instead of monthly as the Medical Society has us as guests in December and July every year. It was voted upon and carried. Our meetings will be held in November, February, May and August with the privilege of called meetings whenever necessary.

The U. K. R. E. A. met here in October. We showed them, through the courtesy of Dr. Veech, a film on "Posture" and secured posters on correct posture for two schools which were glad to display them in their school rooms.

MRS. N. G. RIGGINS, Secretary.

REPORT OF WHITLEY COUNTY AUXILIARY

The Woman's Auxiliary to the Whitley County Medical Society was organized in December 1926 with only four members present. We soon increased our number to sixteen paid up members. Before the year was past we lost some by change of residence. Since that time, however, we have added new ones and at the present time we have eighteen.

Our doctors' wives are a busy people, so we find it hard to accomplish the many things we would like to do; however, we have had monthly meetings with a good attendance and a hearty response to the requests of the president and program chairman for which we are very thankful. In December we elected new officers at which time Mrs. W. W. Steele became president; Mrs. J. H. Parker, first vice-president; Mrs. L. S. Smith, second vice-president; Mrs. Nannie Siler, third vice-president; Mrs. A. C. Foster, fourth vice-president; Mrs. B. J. Edwards, secrtary; Mrs. Lora Bryant, treasurer, and Mrs. J. H. Parker, historian.

Committees were appointed for membership, program, flowers, publicity, organization, Hygeia and hospital.

At this time some very inspirational talks were given, also a social hour.

The January meeting was given to outlining the year's program, however, we have been able to accomplish only a small part of our plans. Afterwards, we were entertained by some readings given by the doctors' younger daughters.

At our February meeting we planned a dental clinic for all the school children of Corbin. A paper was read on "Health Education."

A talk on "Practical Things We Might Do As A Society For the Betterment of the Young People of Corbin" and a talk on "What is Being Done in Our Schools Along Health Lines," given by members of the Auxiliary.

For our March meeting we had a paper on "Development of Medicine" and some musical numbers. During the month of March our Auxiliary with the splendid cooperation of our Corbin dentists held Dental Clinics in each of the school buildings of Corbin at which time 1671 children were examined. Of this number 1388 needed attention. We especially urged the parents to have these defects corrected. A great many have responded.

Our April program was a very busy and varied one. The Woman's Improvement Club, requested a joint meeting with them at which time a lengthy paper was given on "The Aims of Our Society", and a reading on "The Prevalence of Cancer" by members of our society. Later in the month at their observance of "Better Homes Week" each day one member of the Auxiliary gave a paper on some hygienic problem.

We observed Child Health Day, May 1st by having Dr. Sory of Richmond lecture at the High School Building to both pupils and parents. His subject being on Trachoma, was very interesting. We also put Health Posters in all the public places about town and in the school buildings.

Parents' Day was observed in the schools in May, at which time different members of the Auxiliary visited each room of the city school system and distributed literature on "The Care of the Teeth."

In June we entertaned the Cumberland Valley Medical Association at a luncheon, there being 54 present on this occasion. Dr. South-Tye was one of our guests of the day. At this time the Bell and Knox County Auxiliaries were organized.

Our July meeting was strictly a business meeting looking forward to the election of new officers. We also adopted the new constitution as published in the Year-Book.

Our society has taken a firm stand on all health problems; putting up a strong fight on the "Ripper Bill" by sending telegrams, writing personal letters and having other organizations and leading citizens do likewise.

We also rendered valuable assistance in the "Child Health Clinic" held in Corbin during the past winter.

We sympathize just at this time with our secretary, Mrs. B. J. Edwards, in the loss of her father.

MRS. M. W. STEELE, President.

MADISON COUNTY ORGANIZES

The Woman's Auxiliary to the Madison County Medical Society has organized with seventeen members, the following of whom have been elected officers:

President—Mrs. H. C. Jasper.
1st. Vice-President—Mrs. R. M. Phelps.
2nd. Vice-President—Mrs. C. E. Smoot.
3rd. Vice-President—Mrs. J. H. Rutledge.
4th. Vice-President—Mrs. Robt. Cowley.
Secretary and Treasurer—Mrs. John B. Floyd.
Corresponding Secretary—Mrs. J. A. Arbuckle.
Parliamentarian—Mrs. Robt. Sory.

Although but a few weeks old this auxiliary banded together and entertained the women of the state auxiliary at the recent annual meeting of the Kentucky State Medical Association at Richmond.

The membership list includes besides the officers these names: Mrs. J. H. Bosley, Mrs. P. M. Carr, Mrs. Morrison Dunn, Mrs. H. A. Hughes, Mrs. O. F. Hume, Mrs. L. F. Jones, Miss Elizabeth Phelps, Mrs. H. G. Sandlin and Mrs. Paul R. Weeks.

BELL COUNTY ORGANIZES

The Woman's Auxiliary to the Bell County Medical Society has been reported organized in June with three members. Since then the following list of members has been received: Mrs. C. K. Broshear, Mrs. Grant Brummett, Mrs. Chas. F. Clayton, Mrs. Mason Combs, Mrs. Jas. P. Edwards, Mrs. J. G. Foley, Mrs. T. T. Gibson, Mrs. J. H. Hendren, Mrs. Tilman Ramsey, Mrs. Chas. B. Stacy and Mrs. Edw. Wilson.

KNOX COUNTY ORGANIZES

Announcement has been received of the organization of the Knox County Auxiliary with the following officers:

President—Mrs F. R. Burton, Barbourville.
Vice-President—Mrs. L. L. Logan, Barbourville.
Secretary and Treasurer—Mrs. D. J. Jones, Barbourville.

Bell and Knox counties were organized at a meeting of the Cumberland Valley Medical Association, which met in Corbin, June 5th, 1928.

BOOK REVIEWS

CLINICAL MICROSCOPY AND CHEMISTRY. By F. A. McJunkin, M. D., Professor of Pathology in the Marquette University School of Medicine; formerly an Assistant in the Pathological Laboratory of the Boston ity Hospital. Octavo volume of 470 pages with 131 illustrations. Philadelphia and London: W. B. Saunders Company. 1919. Cloth $3.50.

In medical curricula there is little uniformity in regard to the place and scope of the subject comprising the common laboratory methods employed by the physician in the practice of medicine. That such a course of study is desirable in order to bring to the attention of the student he clinical application of chemical and biologic methods seems certain; and, since the question is largely one of selecting and applying methods fro ma clinical standpoint, the subject is usually placed under the direction of an instructor with training in clinical medicine.

Kentucky Medical Journal
Published Monthly By
THE KENTUCKY MEDICAL JOURNAL
Incorporated

Entered as second class matter October 22, 1906, at the Postoffice at Bowling Green, Ky., under act of Congress, March 3, 1879.

Subscription Price $5.00
Edited Under Supervision of the Council

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E. F. Horine..........................Louisville
M. M. Weiss..........................Louisville

COUNTY SOCIETY REPORTS

Campbell-Kenton: The regular meeting of the Campbell-Kenton County Medical Soceity was held at Speers Memorial Hospital on September 6th, 1928.

The meeting was called to order by the President with thirteen members present at 9 p. m.

The minutes of the previous meeting were read and accepted. No bills were received.

Application of Dr. Schaber was received and read before the society. Dr. Shaw moved that it be referred to the board of censors; it was seconded by Dr. Northcutt.

Dr. B. K. Menefee was unable to present his paper, and Dr. Shaw secured Miss Ahrens, Home Demonstration Agent for Campbell county, as speaker for the evening.

Miss Ahrens spoke on Nutrition, and brought three pairs of white rats to the meeting to show the difference between rats fed on bread and butter and rats on oleo and bread. The second set showed the difference between rats eating meat and potatoes and rats eating meat, potatoes and vegetables. The third set showed the difference between rats eating bread and water and the other milk and water. The rats were very interesting, and it was admitted by all that the value of proper food is one of the important factors to promote good health.

Dr. S. P. Harrison gave a short case report fo Obstetrical Case, the interesting factor in the case being a baby with exstrophy of the bladder.

Dr. W. W. Anderson spoke a few words on the importance of not putting to much stress on negative Wassermanns. He had the experience of obtaining eight straight negative tests and then three positive tests.

Dr. B. K. Menefee told of several cases similar to Dr. Anderson's case.

Dr. Asher Caldwell gave a case report of a woman having convulsions, urine was diabetic, and later could not see for a period of 24 hours or more and later was restored to her normal sight again.

Dr. Asher gave a case report of a woman having convulsions, urine was diabetic, and later could not see for a period of 24 hours or more and later was restored to her normal sight again.

Members present: Doctors Justice, Shaw, Griggs, Caldwell, Asher Caldwell, Back, Anderson, B. K. Menefee, S. P. Garrison, Joe Northcutt, Ed Northcutt, Breitenburg and Hafer.

No further business the meeting adjourned.

G. H. ZWICK, Secretary.

Scott: The Scott County Medical Society met at the Health Office Thursday, September 6, at 2 p. m. Dr. H. H. Roberts, presiding, the following members and visitors present:

Dr. Charles Vance, Councilor for this district; Dr. J. S. Chambers of Lexington; Drs. H. H. Roberts, E. A. Anderson, L. F. Heath, S. S. Amerson, H. V. Johnson, P. H. Crutchfield, C. T. Lancaster.

Minutes of previous meeting read and approved. There being no old business, the secretary announced the program of "Acute Poliomyelitis." After which a round table discussion by the entire society opened by Dr. J. S. Chambers of Lexington, in a very able and delightful manner, followed a discussion by all present. We had a very interesting talk by our Councilor, Dr. Charles Vance, whom we are all delighted to have as our Councilor. One clinic case was presented by Dr. Stewart for diagnosis. New business: Scott County Medical Society being informed by Dr. J. S. Chambers, Secretary of Midland Medical Society, that we would meet in Georgetown in October. We are delighted to have that society and invited all members and visitors. We hope to have a good meeting. Drs. L. F. Heath, H. V. Johnson and C. T. Lancaster were appointed as entertainment committee for this meeting.

No other business, meeting closed.

A. STEWART, Secretary.

Scott: Scott County Medical Society met at the City Hall, October 4, at 2 p. m. Dr. H. H. Roberts, presided with the following visitors and members present: Dr. Glen R. Spurling, brain specialist of Louisville; Dr. Jethra Hancock, Director Bureau of Venereal Disease, Louisville; Mrs. Charles Fields, Mrs. Hood and W. A. Hinton of Sadieville; Dr. L. F. Heath, H. V. Johnson, S. S. Amerson, P. H. Crutchfield, E. A. Anderson, M. D. Sanford, W. S. Allphin. Minutes of previous meeting read and approved.

New business, Sadieville visitors and Dr. Sanford made an appeal for a free tonsil clinic to be conducted by Dr. Kobert for the indigent cases. It was discussed and discussed, without coming to a definite conclusion, matter dropped for the present.

Next was a patient of Dr. Bairds, presented by Mrs. Adams of Hydrocephalus, fifteen month old baby, with a head measuring 28 inches. This was freely discussed and explained very ably by Dr. Spurling.

After which, Dr. Glen R. Spurling gave a very scientific lecture on "The Pituitary Gland and Its Disorders." A round table discussion followed. Dr. Jethra Hancock made a short address.

A committee was appointed to entertain The Kentucky Midland, as follows: Drs. Heath, Johnson and Lancaster. Members who were not present certainly missed a very scientific lecture by Dr. Spurling, whom we very sincerely thank for his visit to our society.

No other business, meeting closed.

A. STEWART, Secretary.

Jefferson: The 588th stated meeting of the Jefferson County Medical Society was held at the City Hospital May 7, 1928. Dr. C. G. Hoffman reported a case of "Inoperable Hypernephroma of the Kidney," which was illustrated with lantern slides.

The staff of the Louisville City Hospital furnished the clinical program.

On June 4 the County Society was host at the opening reception of the National Nurses' Convention at the Armory.

On May 21 at the evening session the following case reports were given: Gleaina of the Spinal Cord (Exhibition of Patient) by R. G. Spurling and D. Y. Keith. Two Cases of Acute Mastoiditis Complicated With (1) Sinus Thrombosis, (2) Facial Paralysis, by A. L. Bass.

The essayist of the evening was a paper entitled "Pharmacological Effects Which Manifestly Point to an Underlying Electrical Mechanism," by R. Beutner.

F. M. STITES, Secretary.

Franklin: The Franklin County Medical Society met in regular monthly session at the Capitol Hotel, October 4, 1928, 12:00 o'clock, noon. The following members were present: Drs. Wilson, Roemele, Jackson, C. T. Coleman, Ginn, Patterson, Budd, Lyon, Travis, Youmans and Minish.

Dr. Youmans, the president, presided.

The minutes of the September meeting were read and approved.

Dr. Patterson of a special membership committee, made a report which was accepted.

Dr. E. C. Roemele was in charge of the program and presented Dr. Jethra Hancock, Director of the Bureau of Venereal Diseases, under the State Board of Health, who delivered an interesting and instructive address on the treatment for Lues in the early secondary state. A general discussion of the subject followed, participated in by every member present, each of whom agreed that Dr. Hancock is without a peer in his specialty.

Adjourned to the Hotel private dining room for lunch.

L. T. MINISH, Secretary.

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KENTUCKY MEDICAL JOURNAL TUBERCULOSIS SUPPLEMENT

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KENTUCKY TUBERCULOSIS ASSOCIATION

Volume XXVI March, 1928 Number 3

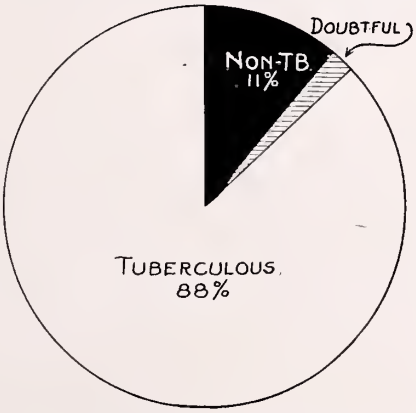
It is estimated that for every death from tuberculosis there are at least three active cases of the disease unknown to themselves or anyone else. Failure to discover tuberculosis is only too often the fault of the indifferent patient. To make a diagnosis of tuberculosis when the patient does present himself is the grave responsibility of the physician. Failure to do so usually leads to serious consequences. In their zeal to avoid committing this error, physicians sometimes diagnose non-tuberculous conditions as tuberculosis. While the consequences of such a mistake are not generally so tragic as those resulting from failure to discover tuberculosis, they are serious. A diagnosis of pulmonary tuberculosis should never be made until all other possibilities have been accounted for.

Mistakes We Make

Stoll, reviewing his own and others' mistakes in the diagnosis and management of tuberculosis, attributes them to three general causes: (1) Diagnosis of tuberculosis on insufficient evidence; (2) failure to detect tuberculosis when present; (3) mistakes in the management of a case after the diagnosis is made.

The harm done by diagnosing tuberculosis when it does not exist is only less serious than that due to the failure to discover tuberculosis when it is present. For it is no light matter to advise a patient to give up his business, break up his home, spend anxious months in "curing" for a disease which he does not have and brand him unnecessarily with a stigma that may hamper his future.

All of the constitutional symptoms usually present in tuberculosis (fatigue, loss of appetite, loss of weight, fever and irritable and rapid pulse, etc.) occur also in other diseases. Unless supported by certain "key" symptoms, these constitutional symptoms are not diagnostic, though their presence is required to justify the diagnosis of active disease. Persistent apical râles, for example, if unaccompanied by constitutional symptoms, do not indicate that active treatment for tuberculosis is necessary.



Diagnoses of 102,680 patients sent to Tuberculosis Sanatoria of the United States—1925.

G. J. Drolet, Amer. Rev. of Tuber.—Dec. 1926

Acute and chronic sinus infection in children and adults may be mistaken for tuberculosis. Other conditions diagnosed as tuberculosis include pneumonia, a failing myocardium and pulmonary abscess.—*Mistakes We Make in the Diagnosis and Treatment of Pulmonary Tuberculosis, Henry F. Stoll, Boston Medical and Surgical Journal, December, 1927.*

Syphilis and Tuberculosis

Authenticated syphilis of the lung is rare. Habliston and McLean, reviewing the literature on syphilis of the lung, conclude that the frequency with which the condition is diagnosed varies with what each individual observer considers sufficient evidence to justify his diagnosis. Osler, for example, reported the condition diagnosed on autopsy 12 times in 2,800 autopsies. Watkins (in 1921) found 169 cases among 6,500 examined by the X-ray, while Ashbury found only 4 cases in 10,000 radiographic examinations.

But syphilis and pulmonary tuberculosis frequently co-exist among certain classes of patients. The authors studied 659 cases with 125 autopsies at the Baltimore City Hospital and found co-existence of the two diseases in 14.2 per cent of their cases. Latent syphilis has little effect on the course of pulmonary tuberculosis, but syphilis as an active disease has a decidedly unfavorable influence on the course of pulmonary tuberculosis. Antisyphilitic treatment was effective without untoward influence on the tuberculous disease. In the authors' cases of pulmonary tuberculosis associated with active syphilis and receiving antisyphilitic treatment, there was a decline of 14.5% in the mortality and an increase of 9.8% improvement.—*The Co-existence of Syphilis and Pulmonary Tuberculosis, Charles C. Habliston and W. Oliver McLean, Jr., Amer. Rev. of Tuber., July, 1927.*

Non-tuberculous Diseases of the Lungs

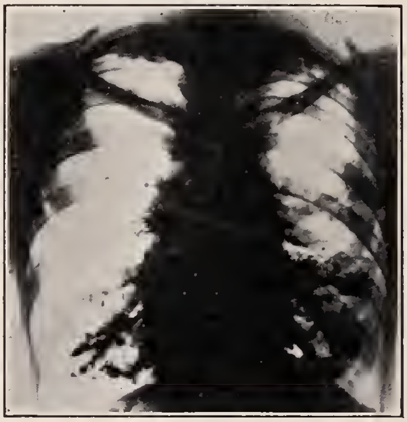
The most common chronic non-tuberculous diseases of the lungs are chronic bronchitis, asthma, emphysema, bronchiectasis, abscess, heart diseases which produce congestion in the lungs, lung tumors and mycotic infections.

Chronic bronchitis usually occurs in older people. These cases do well in warmer climates. Bronchiectasis is a sacculation of the bronchial tubes in which pus collects. Postural drainage treatment is useful and sometimes surgery is indicated. Asthma may be due to spasm of the bronchial wall, or kidney or heart disease. The underlying cause must be treated. Cysts caused by parasites are diagnosed by inserting a needle into them and examining the fluid. Abscess may follow the removal of tonsils or aspiration of fluid or foreign bodies. Tumors may be operated if found early, or relieved by deep X-ray treatment. Non-tuberculous diseases should be ruled out before making a definite diagnosis of tuberculosis.—*Medical News Service, Series III, 1927. Tuberculosis and Health Society of St. Louis.*

Lung Conditions Caused by Fungi

Castellani emphasizes the importance and comparative frequency of Bronchomycoses in infection of the lung by various fungi, a considerable number of which have been identified. There are certain symptoms common to all Bronchomycoses. In mild cases, symptoms of slight bronchitis with mucopurulent expectoration are found. The severe cases present symptoms of phthisis with hectic fever and hemorrhagic expectoration. The diagnosis is based on the absence of tubercle bacilli and the constant presence of the responsible fungus. The prognosis varies according to the causative fungus. Most cases are benefited by the administration of potassium iodide.

The article describes and pictures the various fungi and discusses the symptomatology, diagnosis and treatment of each form of infection. The author believes that the subject deserves more attention, since the condition is not very rare, even in temperate climates, and since a cure can be obtained if accurately diagnosed.—*Notes on Certain Bronchomycoses Which May Simulate Pulmonary Tuberculosis, Aldo Castellani, Amer. Rev. of Tuber., Nov., 1927.*



Bronchiectatic cavities revealed by X-ray and iodized oil. Patient, age 27, was weak and miserable and weighed 80 pounds. Condition dates back to age 5. (*Courtesy D. A. Stewart*).

Septic Infections of the Lungs

Septic infections of the lungs and bronchi are often mistakenly diagnosed as tuberculosis. Their course is very variable, but they are usually progressive, chronic, damaging, debilitating, distressing and, not infrequently, fatal. Bronchiectasis is not an uncommon condition. These infections are characterized by chronic cough; expectoration profuse and foul smelling in the late stages; dyspnea; pain in the chest and, after the disease is well established, weakness and loss of weight. Pleurisy is less common. The lesion is usually basal (in contrast to tuberculosis, in which early lesion is generally apical).

The most troublesome of them can be traced back, sometimes many years, to pertussis, influenza or broncho-pneumonia, or to sinus infections, tonsillitis or bronchitis. Perhaps broncho-pneumonia is the essential factor. Bad teeth, tonsils and mouth conditions generally are fairly constant factors, likely causal. Certain spirochetes and fusiform bacilli found in the mouth seem to be among the specific causes.

Bronchiectatic cavities are not well shown by the ordinary X-ray plate, but iodized oil, placed in the trachea, coats the walls of cavities, if emptied of secretions, and brings the outlines out sharply.

Rest in bed and drainage by posture or perhaps by the bronchoscope are useful in the early stages. Since spirochetes are implicated, neo-salvarsan has been used and successes reported. For the intermediate stage, collapse of the lung by pneumothorax, phrenicotomy or thoracoplasty should be considered. The late stages call for desperate treatment, such as destruction of the diseased lobe by cautery.—*Septic Infections of Lungs and Bronchi, David A. Stewart, Can. Med. Assn. Jour., 1927, XVII.*

Physical signs *confined* to the upper part of the lung in adults challenge the examiner to prove that the condition is *not* tuberculosis; when *limited* to the lower lobes, to prove that it *is* tuberculosis.

ALLEN K. KRAUSE.

KENTUCKY MEDICAL JOURNAL
TUBERCULOSIS SUPPLEMENT

Edited by the
KENTUCKY TUBERCULOSIS ASSOCIATION

Vol. XXVI April, 1928 Number 4

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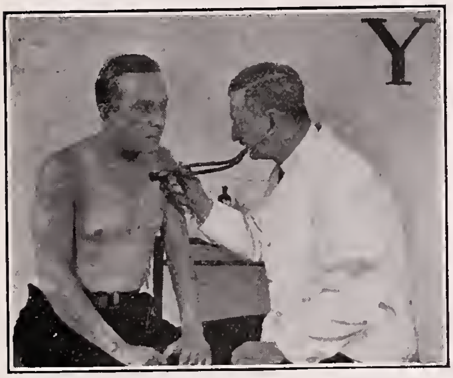


YOU May Have Tuberculosis—"Let Your Doctor Decide" is the slogan of a nation-wide educational campaign now being carried on to arouse the public to the importance of the early diagnosis of tuberculosis. When "consumption" is plainly etched on the face of the sufferer or when his sputum "sinks to the bottom of a pail of water," as the ancients observed, any layman can make the diagnosis of tuberculosis, which is then of little avail. To make a diagnosis of tuberculosis before the process has securely intrenched itself in the lung or before much damage has been done requires skill and is of the utmost importance for the prognosis of tuberculosis varies in almost direct ratio with the promptness of its discovery. Diagnostic skill, however, is not so much a matter of expertness as it is one of taking pains to take a complete history and of properly evaluating the information obtained.

In this issue of "Tuberculosis Abstracts" are summarized in concise form the latest and best data available on the diagnosis of tuberculosis. These data have been gleaned from well known authorities, and are further supported by the report of the Committee on Diagnostic Standards of the National Tuberculosis Association. A convenient pamphlet embodying the report of this committee will be sent to any physician on request or may be secured from his state or local tuberculosis association.

Symptoms of Tuberculosis

The most common subjective symptoms observed in the early stage of tuberculosis are the following:

Fatigue—Loss Of Strength—Lack of endurance, or undue fatigue, often not relieved by usual rest, is the most common symptom of early tuberculosis. Overwork, lack of proper nutrition, excess of various kinds and especially intercurrent diseases such as influenza often lead the patient to complain of an unwonted feeling of fatigue, a "run-down" or an "all-in" feeling. Such obscure or unexplained fatigability should always suggest tuberculosis.

Cough And Expectoration—There is no cough or expectoration characteristic of tuberculosis but all such persisting for six weeks suggest pulmonary tuberculosis. The sputum should be examined two or more times in such cases.

Pain In The Chest—Pleurisy—This is not always indicative of pulmonary tuberculosis, though it perhaps occurs most frequently in this case. Pain aggravated by deep breathing suggests the possibility of tuberculosis.

Hemoptysis—Unexplained hemoptysis of a dram or more of blood is presumptive evidence of tuberculosis. Blood streaks, blood spots, etc., may or may not mean tuberculosis. Any amount of expectorated blood, with or without sputum, may mean that tuberculosis is present and requires careful and thorough medical investigation as to its source.

Hoarseness And Huskiness—When persistent should always be investigated as to origin. Laryngeal tuberculosis is a frequent cause.

Loss Of Weight—amounting to 5% or more of the usual weight within a period of three or four months and not accounted for by seasonal variation warrants a careful examination for tuberculosis.

Fever—Elevation of temperature over 99 degrees F. occuring at some time of the day for several days should be regarded as abnormal temperature and warrants the suspicion of tuberculosis. It should be borne in mind that temperature as high as 99.6 degrees F. may occur after exercise, after meals or during the menstrual period. The temperature during the period of investigation should be taken every two hours for ten minutes in the mouth.

Rapid Pulse—When taken after a half hour of physical and mental rest, pulse rate in men exceeding 90 per minute and in women 95 per minute may be one of the early symptoms of tuberculosis.

Indigestion—Loss of appetite, "finicky" appetite, or what the patient terms "dyspepsia" or "indigestion" is a common early symptom of tuberculosis.

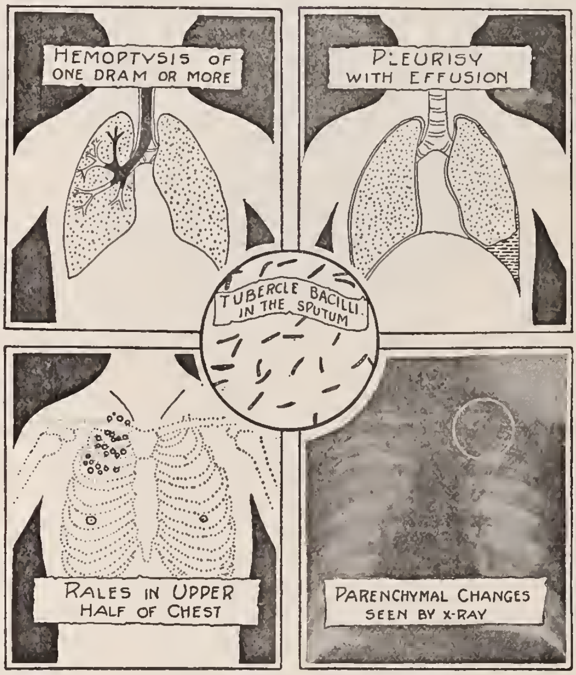
Nervous Irritability--is a frequent early symptom.

Any one or several of these symptoms may prompt the patient to seek medical advice. None of them are pathognomonic. A careful history, of course, should be made, followed by a thorough physical examination, microscopic examination of the sputum and, in most cases, an X-ray examination. The possibility of focal infection of the upper respiratory tract, the sinuses and elsewhere should be excluded. Exposure to tuberculosis, especially if it has been intimate and prolonged or frequently repeated, is very suggestive as adding to the probability of the diagnosis.

Physical Examination

A careful physical examination, particularly of the chest, is essential. Space prohibits full discussion of physical examination procedures, but it may be emphasized that rales heard over the apex and persisting for some time are almost diagnostic of early pulmonary tuberculosis. These rales are best elicited by instructing the patient to breathe in through the mouth, then to breathe out and to give a slight cough with the last part of the outgoing breath. Rales are heard in showers and usually well after the cough at the time the breath is inspired.

Pulmonary tuberculosis may exist without the occurrence of demonstrable physical signs. Absence of abnormal physical signs does not, therefore, mean absence of pulmonary tuberculosis. It is now recognized that the proper taking of X-ray pictures preferably stereoscopic is an essential procedure in the examination of the chest. Definite parenchymal changes are seen in nearly all instances of proved pulmonary tuberculosis. Absence of such changes demands other proof of the existence of the disease.


HEMOPTYSIS OF ONE DRAM OR MORE
PLEURISY WITH EFFUSION
TUBERCLE BACILLI IN THE SPUTUM
RALES IN UPPER HALF OF CHEST
PARENCHYMAL CHANGES SEEN BY X-RAY

Schematic Diagram Illustrating Five Diagnostic Points of Tuberculosis

(Diagram Suggested by Lawrason Brown)

Activity

The determination of activity requires the correlation of clinical, laboratory and X-ray data during a period of observation, preferably in a sanatorium.

Progressive infection may exist without the presence of any symptoms. As a rule, however, the necessity for treatment is determined from the symptoms, such as fever, night-sweats, rapid pulse, fatigue, etc. Activity cannot be determined by physical signs alone. Repeated physical examinations and serial X-rays very often show its presence. The occurence of tubercle bacilli in the sputum does not in itself mean activity of the disease, though it does indicate a less favorable type of lesion (danger of bronchogenic spread). The same may be said of slight hemoptysis. The presence of rales does not mean activity.

Diagnostic Criteria

The diagnosis of tuberculosis cannot however be reduced to a formula. After all possible evidence has been collected, it must be evaluated, which requires judgment based on experience and on a visualization of the pathology. Guesswork can be materially reduced however, by examining the collected evidence in the light of certain "key" symptoms. These are the so-called five criteria of diagnosis of pulmonary tuberculosis and are as follows:

1. A history of hemoptysis of one dram or more without any other known cause.

2. A history of an otherwise unexplained pleurisy with effusion.

3. Definite rales which persist for a week or more in the upper half of the chest.

4. Definite evidence of parenchymal changes seen in the X-ray film, located usually in the upper half of the chest.

5. The demonstration of tubercle bacilli in the sputum on two or more occasions.

The first and second constitute merely presumptive evidence; the third and fourth, while at times misleading and possibly due to other causes, nevertheless very strongly indicate pulmonary tuberculosis. The fifth is practically always conclusive evidence of pulmonary tuberculosis, although it must be borne in mind that in rare cases, tuberculosis of the tracheobronchial lymph nodes without involvement of the lung parenchyma gives rise to a positive sputum.

The most important single manoeuver in the diagnosis of early phthisis is the auscultation of the upper parts of the lungs after expiratory cough.

Allen K. Krause.

KENTUCKY MEDICAL JOURNAL
TUBERCULOSIS SUPPLEMENT

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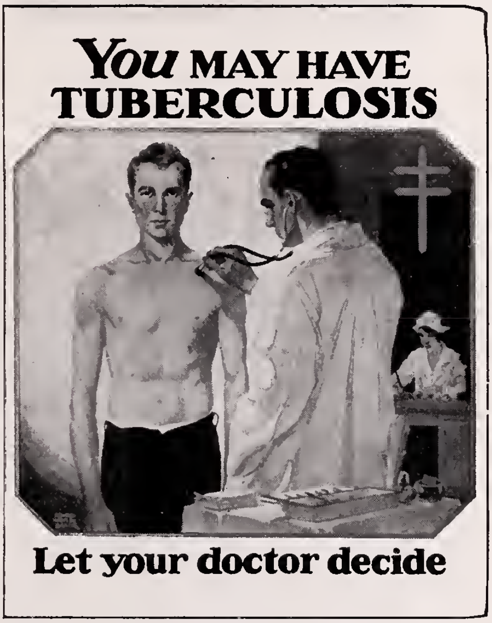
Vol. XXVI May, 1928 Number 5

DURING March, 1928, a nation-wide campaign of education to impress on the public the importance of early diagnosis of tuberculosis was launched. Thousands of talks were given and motion pictures were shown in many places. Newspapers and magazines contributed many columns on the subject. Eight thousand billboards and 500,000 smaller posters carried the message, and about 10 million pieces of printed matter were prepared for free distribution. In connection with the campaign, numerous articles on the early diagnosis of tuberculosis appeared in national, state and local medical and health journals. While each of these articles reflects the individuality of the writer, nevertheless it is evident that opinion is almost unanimous concerning the important features of early tuberculosis. Only a few brief gleanings are here presented.

Family History

Opie emphasizes that close contact, such as occurs in the family, is an important item in the history. Children and adults in families of which some member is tuberculous with sputum containing bacilli, are usually infected with tuberculosis and the infections are often severe. *Henry* believes that well-defined contact, especially in childhood, is a good basis for suspecting tuberculosis. The ideal contact is a baby associating with the mother.



Copy of poster, the original of which, printed in full color, measures 11 x 14 inches.

Fatigue

Hawes lays stress on the constitutional symptoms, most important of which are chronic fatigue, undue fatigue, ease of tire and loss of strength. *Miller* states that loss of strength is the most outstanding symptom of active pulmonary tuberculosis. *Homan* says fatigue is one of the earliest and most important symptoms.

Hemoptysis

All writers appreciate the significance of hemoptysis. *Bray* classes it as the most suggestive of the local symptoms. The amount of expectorated blood varies from a few drams to several ounces. Copious hemorrhages speak for the more advanced stages. A small amount of blood must be interpreted cautiously because of the difficulty in determining its origin. "A physician who fails to realize the significance of hemoptysis," says *Minor*, "is playing with life."

Gastric Symptoms

Anorexia, nausea and other functional gastro-intestinal derangements, states *Bray*, are not uncommon. They may be the first manifestations and present throughout the course of the disease.

Cough

Homan believes that any cough which persists for more than two or three weeks usually means something more serious than an ordinary cold or bronchitis and should call for careful consideration. *Miller* states, that any cough that persists for one month or longer should be thoroughly investigated as to the possibility of its being tuberculous in origin. While this is a symptom and complaint common to all respiratory infections, it is particularly so in cases of tuberculosis characterized by a catarrhal onset.

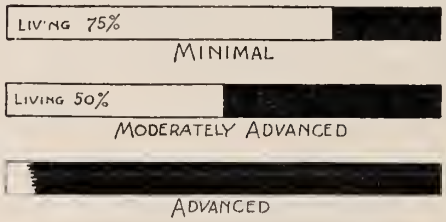
Pleurisy

A history of pleurisy with effusion should always arouse suspicion. It may be agonizing but more often it is dull-aching in character. It is unilateral and for the most part confined to the base. According to *Homan*, 90% of pleurisies are of tuberculous origin.

Temperature

Afternoon or evening temperature of 99 degrees or over needs explanation says *Webb*, and the temperature should be studied for at least a week with the patient in bed. One or two readings in the office are not reliable. *Sewall* adds, " when there is a periodic afternoon rise in mouth temperature of one-half degree, increased after exercise, the evidence for tuberculous infection is strengthened; sub-normal temperature points in the same direction if to a different phase."

Subsequent Results of Treatment of Tuberculosis in Relation to Stage of Disease



Bardswell analyzed the results of treatment covering 10,000 cases discarged from English sanatoria. Of those diagnosed minimal tuberculosis on entrance, 75% were alive five years later; of the moderately advanced, 50%, and of the advanced, "a small per cent only" were alive. (TUBERCLE, Volume VI, October, 1924)

Rales

All writers agree that the auscultatory findings are most important. *Otis* places his main reliance upon the findings of persistent fine rales at the apex. They are definitely abnormal and almost pathogonomic of tuberculosis, though not always of active cases. He quotes *McKenzie's* dictum, "The earliest physical sign which is really characteristic is the presence of rales." Rales heard at the base are rarely significant. *Miller* is perhaps most emphatic when he says, "The presence of persistent moderately coarse rales, in fact any type of rales, localized in the upper lobe above the third rib warrants a diagnosis of pulmonary tuberculosis." *Webb* describes the technique of eliciting rales as follows: "The patient should be instructed to breathe in through the mouth, then to breathe out and to give a slight cough with the last part of the outgoing breath. Rales are heard in showers and usually occur after the cough at the time the breath is inspired."

X-Ray

The X-ray helps to confirm the lesions found by physical examination. *Sewall* says a complete X-ray of the chest is indispensable as an objective aid to diagnosis and that its interpretation needs the clinician. *Myers* regards the single flat film as of slight help and recommends the wider use of stereoscopic films. "The roentgenologist," he adds, "should become familiar with the modern technique." *McPhedran* points out that, in flat films, blood vessels axially radiated cast shadows similar to tuberculous nodules. He advises exposure from different angles and also in series. *Opie* says that radiological examinations are necessary to determine the position and extent of lesions unaccompanied by physical signs. The physician should learn to take part in the interpretation of plates.

Tuberculin Test

The tuberculin test determines infectivity but not necessarily lesions. Its chief value, therefore, is in determining infection in children. However, *Homan* regards it as a useful aid in adults for, in patients with active tuberculosis, the reaction to tuberculin comes earlier and is usually more marked than in the one with a quiescent lesion.

Tubercle Bacilli

Finding bacilli in sputum offers conclusive evidence of tuberculosis. A single examination is not enough. Repeated failure to find bacilli does not rule out tuberculosis. Says *Bray*, "Guinea pigs develop tuberculosis from being inoculated with sputum from patients where numerous microscopic examinations failed to show the bacilli."

Responsibility of Doctors

Potts, writing of the responsibility of doctor and patient in discovering tuberculosis, divides doctors into two groups. "The first group is on the defensive, defending late stage diagnosis because it is all they know how to make; . . the second group has a personal feeling of responsibility . . . they are not fatalists and they are not on the defensive."

KENTUCKY MEDICAL JOURNAL
TUBERCULOSIS SUPPLEMENT

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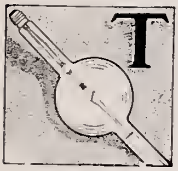
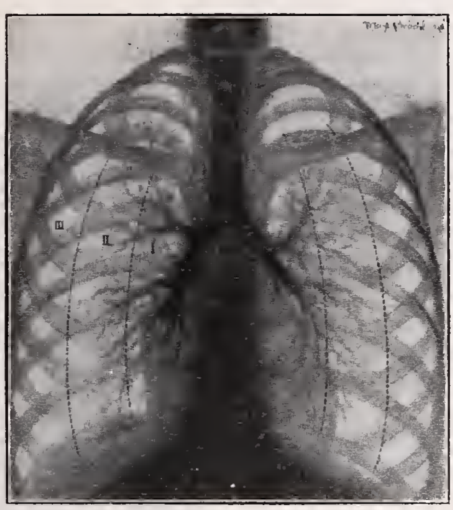
Vol. XXVI June, 1928 Number 6



THE X-ray is a valuable diagnostic aid in diseases of the chest. Definite roentgenological evidence of enlarged lymph nodes, plus a positive tuberculin reaction strongly indicates tuberculosis of the juvenile type. Definite parenchymal changes seen in the X-ray film, located usually in the upper half of the chest and which coincide with the clinical findings, strongly support the diagnosis of pulmonary tuberculosis. But the X-ray must be regarded, at best, merely as an aid to diagnosis. Interpretations of the plate should always be made by roentgenologist and clinician jointly.

Chests of Normal Children

A group of three roentgenologists, working in close cooperation with as many clinicians, attempted to establish the X-ray appearance of the normal child's chest. Five hundred children were studied. While it was found impossible to describe a normal chest, they succeeded in establishing a theoretical normal with wide variations that would serve as a basis for the interpretation of abnormal appearances. A composite diagrammatic reproduction of several roentgenographs was made and marked off into three zones. Zone I contains the root shadows, Zone II, the trunk shadows gradually fading out into their final subdivisions and Zone III, radiating lines from these and shading off before the periphery is reached. The conglomerate shadow, commonly called the hilum shadow, when found lying entirely within Zone I, may be regarded as normal except where it is made up of a solid mass of homogeneous shadow giving undoubted evidence that it represents a growth or mediastinal pleurisy. Calcified nodes at the root of the lung without evidence of lung disease are of no significance except as a possible evidence of some healed inflammatory condition, possibly, but not necessarily, tuberculous. Where in Zone II and III normal shadows do not gradually fade out as described, the appearance may be due to a variety of conditions of an inflammatory nature or otherwise; it may accompany a tuberculous process but is not necessarily indicative of tuberculosis.—*Clinical and X-ray Findings in the Chests of Normal Children, Harry K. Pancoast, Kennon Dunham and F. H. Baetjer, Amer. Rev. of Tuber., July 1922, VI, 331-40.*



Composite diagram made from several roentgenographs of normal children's chests and divided into zones.

The Healthy Adult Chest

The same group of clinicians and roentgenologists later attempted to describe the roentgenological appearance of the normal adult chest. In view of the many lasting evidences of previous disease found in clinically normal chests, it was decided to discontinue the use of the term, *normal chest* and adopt that of *healthy chest.* On this basis, the clinicians selected 280 adults whose chests were clinically normal. Relationships and appearances of the bones, soft parts, diaphragm, heart, aorta, trachea and bronchi were studied, as well as the hilum shadow, the trunk shadows and calcifications. It was found convenient and practical to divide the chest into zones as in the child's chest studies. Another valuable landmark was established by dropping a perpendicular line from the mid-point of the left clavicle. This line passes well outside the middle of the diaphragm and the apex of the heart is well within the line. Calcifications were almost universally noted in one or both hila by two members of the X-ray group and not so frequently by the third member. Calcifications were occasionally found in the upper lobes and quite frequently along the heavy trunks to the lower lobes. As calcified tuberculosis lesions increase with age and as they are more numerous with children in contact families than with those in non-contact families, it was concluded that calcified tracheobronchial lymph nodes in adults are less significant than in children, for in most instances healing has doubtless occurred.

The complete report, illustrated with diagrams and X-ray photographs may be secured through the tuberculosis society.—*Studies on Pulmonary Tuberculosis. II. The Healthy Adult Chest, Henry K. Pancoast, F. H. Baetjer and Kennon Dunham, American Review of Tuberculosis, April, 1927, XV, 429-71.*

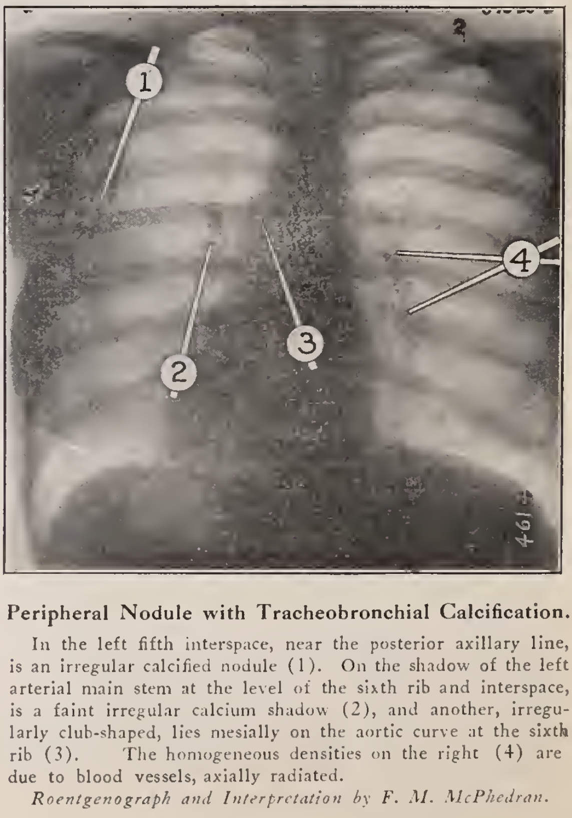
X-Ray for Discovering Juvenile Tuberculosis

A study of 50,000 school children, made by the Massachusetts Department of Health, showed that 3.7 per cent had hilum (tracheobronchial) tuberculosis. Without a roentgenograph, no absolute diagnosis of hilum tuberculosis can be made, nor can tuberculosis be eliminated in an ill child unless the X-ray films are negative. Slight changes in area or of density of the hilum shadows are of no significance, but areas of increased density at the root of the lung or along the trachea that have the form of glands or gland masses justify the assumption that calcified tuberculous glands are present. Rarely one finds a large area of homogeneous shadow extending from the hilum toward the periphery due to a recent infection with tubercle bacilli. Serial films, taken at several months' intervals, show a gradual absorption, ending eventually in a small, calcified nodule.—*The Diagnosis and Prognosis of Juvenile Tuberculosis, Henry D. Chadwick, Boston Medical and Surgical Journal, January 26, 1928, CXCVII, 1399-1401.*

Serial X-Rays to Follow Progress

Many roentgenologists and clinicians advise that X-ray plates be made serially; that is, at regular intervals in order to determine (in conjunction with clinical findings) whether the disease is progressing, retrogressing or remaining stationary. A brief summary of the course of tuberculosis as followed by the X-ray is as follows:

In early active tuberculosis, infiltration most commonly appears in the periphery of the lung above the level of the third rib. The shadows appear light and fuzzy or mottled, densest in the centre. Leading from the mottling toward the lung hilum, there are usually seen fuzzy areas along the linear markings and the bronchial trunks. As the disease progresses, the mottling may spread over a considerable area and the shadows seem to coalesce. The densest shadows are interpreted as caseation and these usually appear where the dense areas in the mottling were first seen. From infiltration to caseation ordinarily requires more than a month. Later, the dense caseous shadows become less dense and often entirely disappear, thus leaving areas of rarefaction. By the coalescence of several such areas, a large area involving, sometimes, the greater part of the upper lobe may result, giving evidence of cavitation. As healing begins, the hazy outlines, particularly those at the hilum, become sharper and the areas shrink. Definite opacity is interpreted as deposits of calcium. Consolidated areas, as they become fibrous, show heavy bands extending from the hilum to the periphery. After calcification takes place, areas interpreted as caseation increase in density and finally become sharp and opaque. Calcification is found to develop from eight months to two years. The obliteration of cavities may be shown by the X-ray. Around the areas of rarefaction (cavitation) is seen a dense ring (fibrous wall). As fibrosis increases, the ring contracts until there remains only a heavy clouding or small deposits of fibrous tissue.—*Modern Aspects of the Diagnosis, Classification and Treatment of Tuberculosis, J. A. Myers. Chap. IX, Williams &Wilkins.*



Peripheral Nodule with Tracheobronchial Calcification.

In the left fifth interspace, near the posterior axillary line, is an irregular calcified nodule (1). On the shadow of the left arterial main stem at the level of the sixth rib and interspace, is a faint irregular calcium shadow (2), and another, irregularly club-shaped, lies mesially on the aortic curve at the sixth rib (3). The homogeneous densities on the right (4) are due to blood vessels, axially radiated.

Roentgenograph and Interpretation by F. M. McPhedran.

KENTUCKY MEDICAL JOURNAL TUBERCULOSIS SUPPLEMENT

Edited by the

KENTUCKY TUBERCULOSIS ASSOCIATION

Vol. XXVI July, 1928 Number 7

THE quest for a cure for consumption is probably as old as history. Koch raised hopes of finding a specific cure in tuberculin, the concentrated media of broth cultures of tubercle bacilli. His failure has since been followed bv numerous others. In the files of the National Tuberculosis Association there are today records of 680 "cures" some that give pause to thought, some ingenious, but most of them ridiculous. Meantime, rest, fresh air, and good food have been established as the tripod on which the treatment of tuberculosis depends. Latterly rest has been so unanimously emphasized by clinicians who specialize in tuberculosis that it might be regarded as the pillar of successful treatment, while fresh air, good food, artificial pneumothorax and other therapeutic devices might be considered as supplementary supports.

Rest Is Relief from Strain

Rest may mean the sloth of the indolent or the relief from tension that follows change of occupation, says Allen K. Krause. Therapeutically however, rest represents *relief from strain.* Treatment must aim to limit and confine the activities of tuberculous foci and to reduce to zero or a minimum the absorption of harmful focal products. At any time, undue stress may stir quiescent foci into renewed activity. It is axiomatic that uncontrolled movement of a diseased or injured part will promote the spread of the disease and delay recovery. To stop the progress of tuberculous foci is to cure tuberculosis.

Fever, fatigue, loss of appetite and other constitutional symptoms of tuberculosis are manifestations of intoxication resulting from absorption of focal substances. The rate and capacity of this absorption depend on the circulatory and respiratory activities of the body. Rest brings about a diminution of physiological demands and reduces the amount of focal absorption.

Rest for the sick man is a better "tonic" than exercise. As a result of prolonged rest, the appetite returns, the fever falls and a sense of well-being sets in, while depleted reserves are built up, thus assisting in the healing of foci. Rest is a potent medicine, to be prescribed according to the requirements of each individual case by a physician who understands its use.

The febrile, acutely ill cases must have absolute bed rest for at least two weeks after the temperature has returned to normal. After the constitutional symptoms have disappeared, the patient must still be kept below the fatigue line. The fatigue line is an individual affair, registered only in the patient's own consciousness. The duty of the physician is to explain to the patient why relief from strain is important. But there can be no set formula for the individual patient; he must rely on his own intelligence and behavior. Rest should be so engraved on the patient's mind that he will automatically respond with rest to the first symptom of fatigue.

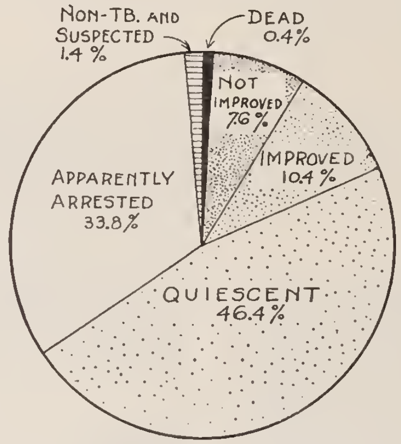
Of all the countless remedies proposed, rest alone has stood the test of time.—*Gerald B. Webb*

Sanatorium treatment is vastly more satisfactory for the majority of patients since rest and discipline and the means of insuring these are more readily obtainable there. The sanatorium, moreover, teaches and trains the patient how to care for himself.—*Rest and Other Things, Allen K. Krause, Williams and Wilkins Company.*

Food Requirements and Fresh Air

Good nutrition is important, but "stuffing" the patient, as formerly practiced, is a mistake. Overeating is like clogging an engine with unburnt carbon by using too much fuel. Sometimes, the appetite must be cajoled. Three good meals a day, two or three glasses of milk (with or between meals), one or two eggs a day, are often sufficient to add enough to the patient's weight to bring him the gain wished for. A good general rule is that the least amount of food that will enable any patient who is underweight to gain up to and slightly beyond the normal weight is the optimum diet for that patient.

Fresh air as a "cure" for tuberculosis has probably been overemphasized by the laity. It is, however, an essential aid to recovery. Outdoor air is a mild and beneficial stimulant. Sleeping out of doors does not necessarily hasten recovery, provided eight to ten hours a day are spent in the open air and the night passed in a well-ventilated room. Mere dryness of the air is of little avail. Temperature, humidity and air movement determine the quality of indoor ventilation.—*Rules for Recovery from Tuberculosis, Lawrason Brown, Lea & Febiger.*



Condition on discharge of 222 patients who remained over 90 days (average 229 days) at Trudeau Sanatorium, 1925-26.—*Annual (1926) Medical Report of the Trudeau Sanatorium*

Disposition of Patients

Patients may be divided into three groups as far as treatment is concerned:

1. Suspects, cases under observation, and those in which the diagnosis is not definite, can be treated at home or fall into groups (2) or (3). The patient is on trial and more radical measures, such as going to a sanatorium, may be, and very likely will be, necessary. In a few cases of this group, sanatorium or hospital treatment, if it can be obtained at once, is of great value educationally and otherwise and entirely justified in instances where adequate home treatment is not possible in order to clear up a diagnosis.

2. Cases in which the diagnosis is definite and in which the disease is progressive, with or without a positive sputum, should be sent to a sanatorium or hospital at once and should remain as long as the physician considers it necessary. This is the ideal to be sought for in the great majority of cases. Home treatment may be substituted (a) when there are no children in the family who might be exposed to the disease in the open form, (b) when the intelligence of the patient or his family is such that adequate carrying out of details is assured, (c) when good nursing and medical service is available and (d) when there are facilities for proper outdoor treatment.

3. Arrested, apparently arrested and quiescent cases need close medical and nursing supervision if the good done at a sanatorium is to be permanent. Home treatment may be satisfactory for the majority of these cases. Frequent visits to the home by the nurse and monthly consultations should be required. The amount of work done and the choice of employment are to be decided by the physician. The patient should know that it may become necessary at any time for him to return to the sanatorium when indications of an impending breakdown occur.—*Diagnostic Standards Pulmonary and Glandular Tuberculosis of the National Tuberculosis Association, Seventh Edition, November, 1926.*

Climate and Altitude

There is no specific for the cure of tuberculosis. Climate is not a specific. Altitude is not a specific.***No physician, therefore, is justified in advising a change of climate unless he knows that the patiant's financial status will enable him to command the essentials. To put it categorically, if a little arbitrarily: proper medical supervision, sanatorium regime, either in a sanatorium or in the home, reasonable contentment of mind and intelligent cooperation count ninety or ninety-five per cent of effective therapeusis; climate and change of environment count five or at the utmost ten per cent. Why, therefore, sacrifice the ninety or ninety-five per cent for a five or ten per cent in those cases who can *not* command the one hundred per cent? On the other hand, if the patient can afford to go to a first class sanatorium or secure the services of a good phthisiologist in a more salubrious climate, and will be reasonably contented away from home, by all means he should be urged to avail himself of the full one hundred per cent of these efficacious measures.—*Louis C. Boisliniere, Journal of the Outdoor Life, February, 1928.*

KENTUCKY MEDICAL JOURNAL
TUBERCULOSIS SUPPLEMENT

Edited by the
KENTUCKY TUBERCULOSIS ASSOCIATION

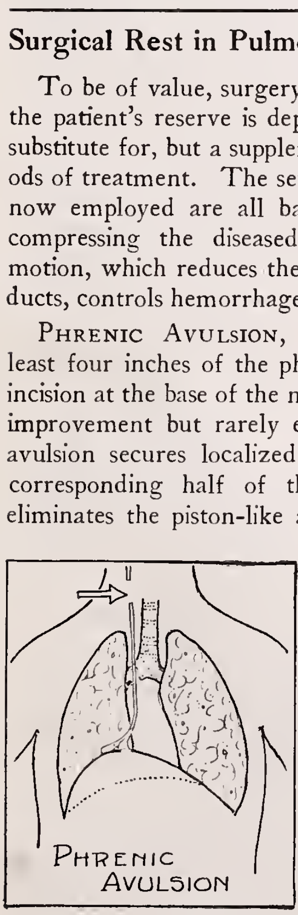
Vol. XXVI August, 1928 Number 8

GENERAL systemic rest is the foundation of the treatment of tuberculosis. Tuberculous lungs, like other diseased organs, heal best when at rest. Bed rest not only conserves the energy supply of the entire body but also lessens the activity of the lungs. Postural rest and the chest splint are valuable in that they reduce the work of the lung most affected. It has long been known that spontaneous pneumothorax often has a beneficient effect in tuberculosis, due to the enforced rest of the lung brought about by the pneumatic pressure. Pleural effusion, a common complication of pulmonary tuberculosis, also tends to compress or "splint" the lung, while pleural adhesions often serve to limit the motion of the diseased part. With these natural methods of inducing rest of the affected lung as a cue, surgical methods to secure partial or complete immobilization of the lung have been devised. Surgical procedures imitate the natural methods but are more precise and aim to avoid the disadvantages of spontaneous pneumothorax, pleuritic effusion and adhesions. Lung surgery and particularly artificial pneumothorax is proving its great value as an adjunct in the treatment of pulmonary tuberculosis.

Surgical Rest in Pulmonary Tuberculosis

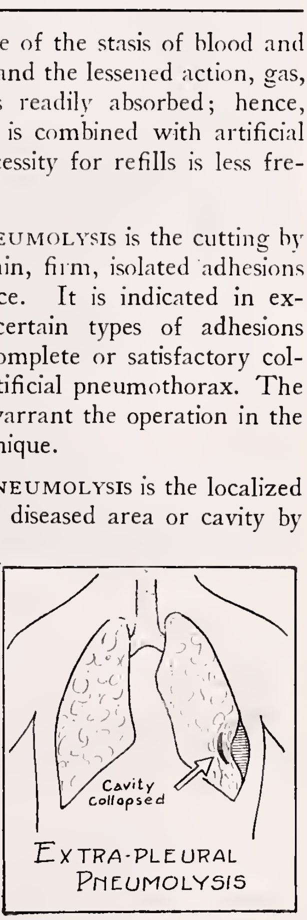
To be of value, surgery must be invoked before the patient's reserve is depleted. Surgery is not a substitute for, but a supplement to, the older methods of treatment. The several surgical procedures now employed are all based on the principle of compressing the diseased lung, thus limiting its motion, which reduces the absorption of toxic products, controls hemorrhage and favors repair.

PHRENIC AVULSION, or the extraction of at least four inches of the phrenic nerve through an incision at the base of the neck, may lead to striking improvement but rarely effects a cure. Phrenic avulsion secures localized rest by paralyzing the corresponding half of the diaphragm. This eliminates the piston-like action of the diaphragm and lessens its excursions. Unless held down by adhesions, the diaphragm domes upward and thus materially reduces the capacity of the corresponding half of the thorax. Coughing is made easier and more productive; the amount of sputum diminishes and the lesions improve. Because of the stasis of blood and lymph within the lung and the lessened action, gas, air and fluids are less readily absorbed; hence, when phrenic avulsion is combined with artificial pneumothorax, the necessity for refills is less frequent



INTRAPLEURAL PNEUMOLYSIS is the cutting by the electrocautery of thin, firm, isolated adhesions within the pleural space. It is indicated in exceptional cases with certain types of adhesions which interfere with complete or satisfactory collapse of the lung by artificial pneumothorax. The risks involved seldom warrant the operation in the present state of its technique.

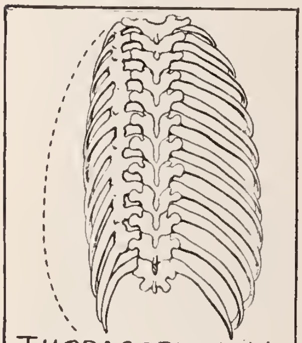
EXTRA-PLEURAL PNEUMOLYSIS is the localized direct compression of a diseased area or cavity by bluntly separating the two layers of the pleura through a small opening in the thoracic wall and filling the space with fat, muscle, gauze or plastic wax. While it is theoretically a good procedure, the operation is uncertain and incomplete and has the danger



of infection, ulceration, rupture of the cavity and hemorrhage.

Limited Thoracoplasty was devised originally for the obliteration of empyema cavities by resecting lateral segments of the ribs. The outward spring of the rib-ends, however, is unopposed when the rib is resected in the area of greatest convexity and the stumps serve as attachments for the auxiliary muscles, forming rigid buttresses which interfere rather than favor collapse of the thorax.

Total Thoracoplasty is the compression of the entire lung by resecting all, or nearly all, the ribs on one side as close to the spinal column as possible. The operation is indicated (a) when artificial pneumothorax is unsatisfactory because of adhesions; (b) when the lung fails to expand after pneumothorax treatment; (c) when lesions in the re-expanding lung become active and pneumothorax cannot be re-induced; (d) when large cavities with rigid walls or pleuritic adhesions make the ultimate prognosis doubtful; (e) when recurrent hemoptysis is not relieved by other means; (f) when, for mechanical reasons, further progress is impossible; (g) when there are complications or conditions which justify desperate measures or which are not suited for less radical treatment.



THORACOPLASTY

From Thoracic Surgery-Lilienthal

The single stage total thoracoplasty is the ideal operation since the collapse is immediate, uniform and extensive, but the risk and post-operative dangers are so great that it is seldom justified. Two or more stages at short intervals of two or three weeks are much safer, especially when the resistance of the patient is low. The lower ribs are removed as a first stage to obviate the danger of aspiration infection and pneumonia in the lower lobe or in the other lung. An upper first stage may be safely performed when the lower lobe is controlled by partial artificial pneumothorax until post-operative compression and healing in the upper, more diseased area are advanced or complete, after which the lower lobe may be permitted to re-expand slowly. The number of ribs and the lengths or segments to be removed must be governed by the condition of the pleura, the size and extent of the empyema, the presence, size, rigidity and location of the intra-pulmonary cavities and the flexibility or rigidity of the thoracic walls. The shortening of the ribs causes them to become more parallel with the spine and thus diminishes the thoracic capacity. In time, the gaps left by the resection become bridged over by new bone which adds to the immobilization.

The effects of surgical procedures on the capacity of the lung are:

Massive pneumothorax gives massive compression.

Phrenic avulsion decreases capacity of thorax 1-6 (400 cc.) to 1-3 (800 cc.).

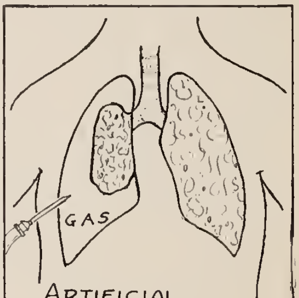
Complete paravertebral resection decreases capacity of thorax 1-4 (600 cc.) to 3-8 (900 cc.).

Phrenic avulsion plus complete paravertebral resection decreases capacity of thorax 5-8 (1500 cc.).

Phrenic avulsion plus complete paravertebral resection plus parasternal resection decreases capacity of thorax 3-4 (1800 cc.).

Results are proportionate to the resistance of the individual to the disease, as expressed in degree of pulmonary fibrosis, and to the degree and maintenance of collapse.—*Surgical Rest in Pulmonary Tuberculosis, Casper F. Hegner, American Review of Tuberculosis, March 1928, XVII, 282-92.*

Artificial Pneumothorax is the compression and consequent immobilization of the lung by introducing under pressure an inert gas into the pleural cavity. J. Carson advocated the use of artificial pneumothorax in 1821. Houghton, in 1832, reported a case of advanced consumption which recovered after a spontaneous pneumothorax. Forlanini in 1894 and 1895, reported a series of cases which had been treated with artificial pneumothorax. This procedure has gradually gained in favor until today it is regarded as a most important adjunct in the treatment of tuberculosis. Artificial pneumothorax will be discussed in August "Tuberculosis Abstracts."



ARTIFICIAL PNEUMOTHORAX

The therapeutic result of rest is proportionate to the degree of rest obtained. To be of utmost therapeutic value, rest must be physical, physiological and physic.—*C. F. Hegner.*

KENTUCKY MEDICAL JOURNAL TUBERCULOSIS SUPPLEMENT

Edited by the
Kentucky Tuberculosis Association

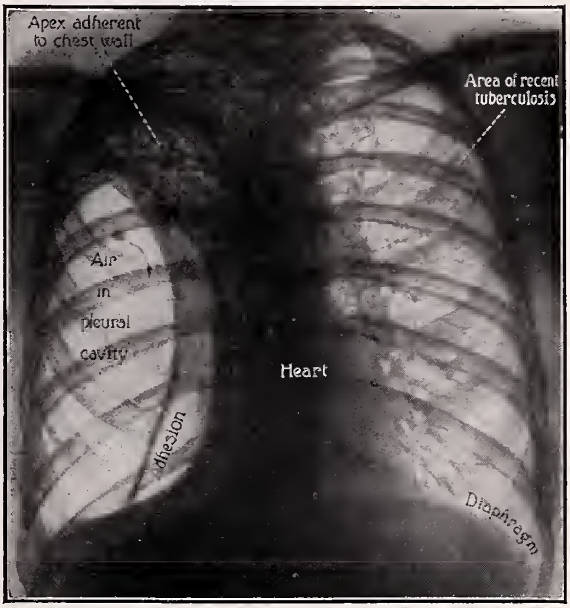
Vol. XXVI · September, 1928 Number 9

> NO more hopeful ray of sunshine has ever come to illumine the dark kingdoms of disease than that introduced into the path of the consumptive through the discovery of artificial pneumothorax. Recommended on theoretical grounds nearly a century ago, so soon, indeed, as the elasticity of the lung was first clearly recognized, first practiced some sixty years later, but again forgotten, it is only during the present decade that it is reaching that place of supreme importance in phthisis-therapy which is undoubtedly its due.—
> *Clive Riviere.*

Artificial Pneumothorax

Artificial pneumothorax is a surgical procedure whereby an inert gas is injected into the pleural cavity. This causes the lung to collapse, since normally the pleural cavity is merely a potential one with negative atmospheric pressure. When there are severe or extensive tuberculous lesions of the lung which fail to respond to the usual methods of treatment, artificial pneumothorax has proved its value. Collapse puts the lung at rest, retards the growth of tubercle bacilli and stimulates the rapid growth of fibrous tissue. It is especially indicated when the disease is limited to one side and when the condition has failed to respond to the usual methods of treatment. If not more than one-half of one lobe of the good lung is involved, collapse of the worst lung is indicated. In recurring pulmonary hemorrhage, the induction of artificial pneumothorax is a God-send. The procedure is often of value in pulmonary abscess and in uni-lateral bronchiectasis.

The apparatus for collapsing the lung consists essentially of two glass jars, a manometer, a large calibred needle and the necessary tubing. The puncture is commonly made after novocaine anesthesia, at about the level of the fifth to seventh interspaces in the mid-axillary, or anterior axillary, line. When the needle has entered the pleural cavity, the tube is attached to the manometer, which should register a distinctly negative pressure with oscillations corresponding to the respirations. A very small quantity (10-15 cc.) of gas is allowed to flow into the pleural cavity. This is repeated every minute or so, meantime watching the manometer, until the patient has received a total of 150-250 cc. The needle is then withdrawn and the wound sealed with collodion Two or three days later, a refill of gas is given. Complete collapse should usually extend over a period of some three to five years, depending on the rate of healing of the lesions.—*Modern Aspects of the Diagnosis and Treatment of Tuberculosis J. A. Myers.*



From X-ray plate showing extensive tuberculosis of right lung and collapse following artificial pneumothorax.
Courtesy J. A. Myers

Results of Artificial Pneumothorax

Peters reports as of July 1, 1925, a series of 273 patients at the Loomis Sanatorium, in whom therapeutic pneumothorax was administered or attempted during the years 1911-1923 and carefully followed up thereafter. Cases were divided for purposes of study into three groups; i.e. satisfactory collapse, incompletely effective collapse, temporary or undetermined collapse.

In the earlier group (1911-1917) unfavorable cases predominated and a satisfactory collapse was less often secured. From 1918 on, about three times as many patients as formerly have received this treatment and for longer periods.

At least 85 per cent of cases had far-advanced disease. Thirty-two per cent were "desperate last resort" cases. Classified according to clinical type or course, about 10 per cent were of acute phthisis, 30 per cent of very chronic forms, and 60 per cent intermediate, subacute or subchronic Almost all could be regarded as clinically active, and all had symptoms or disability of some sort, dependent on their tuberculosis.

About 33 per cent of all cases in whom this procedure was attempted obtained a satisfactory or effective collapse of the diseased lung. In about 20 per cent, it was found impossible to induce any pneumothorax whatsoever. In the remainder, or 46 per cent, various degrees of collapse, more or less effective or temporary, were obtained. Extremely chronic cases and "desperate last resort" cases are unlikely to obtain a satisfactory collapse. On the average, the shorter the duration of symptoms, the more likely is an effective collapse to occur, but exceptions happen frequently. Very acute cases are more likely to be associated with extensive pleuritic adhesions than the less acute types.

Among the various reasons for discontinuing pneumothorax, obliterative adhesions with contraction of the pleural space played an important role, also unsatisfactory clinical response, due in most cases to an ineffective or incompletely effective collapse. Progression or exacerbation of disease in the contralateral lung was a somewhat less frequent reason than the foregoing for the cessation of treatment, assuming great importance in the "desperate last resort" cases and in the group of acute phthisis.

Pleuritic complications were encountered in at least half of those treated by pneumothorax, serous pleurisies being most common. The more serious complications were most frequently associated with the more serious types of disease and those in which pathological conditions prevented a satisfactory collapse.

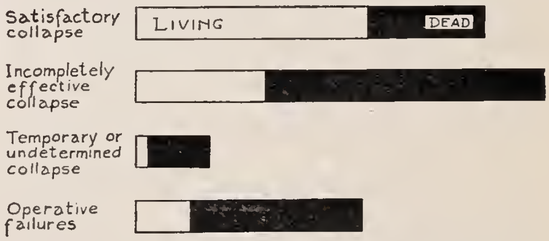
Of other important complications developing during or after the course of treatment, intestinal were most frequently noted; in about 4 per cent. Tuberculosis meningitis occurred in over 4 per cent of the "satisfactory collapse" group, being, of course, fatal. There were no cases of gas embolism nor serious "pleural reflex" or shock.

Progression or exacerbation of disease in the contralateral lung has been recorded in about 25 per cent of cases under pneumothorax, and improvement in about 7 per cent, leaving about two-thirds *in statu quo*. Among the "satisfactory collapse" group alone, more showed improvement in the contralateral lung than the reverse.

The results obtained vary greatly with certain factors, most important of which is the obtaining and maintaining of a satisfactory collapse of the diseased areas for a sufficient period of time. The striking effect of a satisfactory pneumothorax in bringing about the disappearance of tubercle bacilli from the sputum commands attention. The proportion of apparently durable end-results appears to bear a very close relation to the permanent disappearance of tubercle bacilli from the sputum

Of all patients in whom any pneumothorax at all was induced, 42 per cent were living at the end of two to fourteen years, and 24 per cent were reported in satisfactory condition. Of the group with satisfactory collapse, 61 per cent were living, and 45 per cent were reported in satisfactory condition. *The end-results in the pneumothorax group were nearly twice as good as when no pneumothorax was possible.* Actually, the "satisfactory collapse"group accounts for most of the difference: when a satisfactory collapse was obtained, the chances of being alive and in satisfactory condition after two to fourteen years were almost trebled. and the chances of being in satisfactory condition exactly trebled.—*Artificial Pneumothorax at the Loomis Sanatorium over Fourteen Years, Andrew Peters, American Review of Tuberculosis, Vol. XVII, April, 1928, pp. 348-373.*

Results of Pneumothorax Treatment



Status of 257 patients on July 1, 1925, treated by artificial pneumothorax from 1911 to 192 at Loomis Sanatorium.

White, living; Black, dead.

"All in all, artificial pneumothorax represents by far the greatest advance yet made in the special treatment of pulmonary tuberculosis."—*Allen K. Krause.*

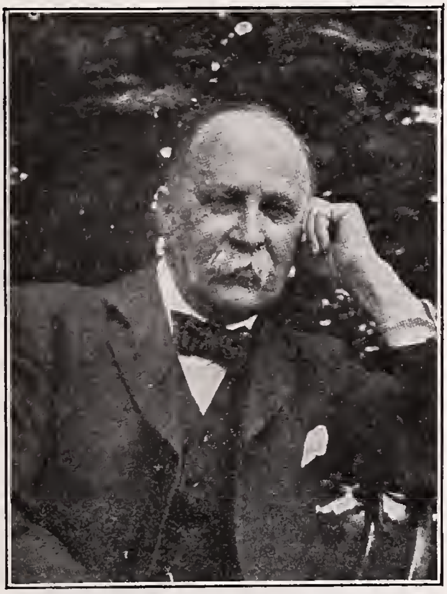
KENTUCKY MEDICAL JOURNAL TUBERCULOSIS SUPPLEMENT

Edited by the
KENTUCKY TUBERCULOSIS ASSOCIATION
Vol. XXVI October, 1928 Number 10

TREATING a case of tuberculosis requires science and art. The tuberculosis patient is sick physically and psychically. "Treat the patient—not only the disease" is more than an empty play on words. In no disease is recovery more dependent on the intelligence and cooperation of the patient than in tuberculosis. Expert management of the pathological condition is not enough; the patient must also be taught and trained and encouraged to adjust himself to his handicap. Unless doctor and patient are sympathetically in accord, this cannot be achieved.

Sir William Osler Said:

"There is no greater mistake than to keep from the patient the knowledge that he has tuberculosis in its early stages, as it is only by having that knowledge that he can be expected to recover. We are criminal participants if we refuse to tell the patient exactly the nature of the trouble."



Safety in Knowledge

Patients may recover without even knowing they are tuberculous; but it is far better that a tuberculous person study the disease in order that he may recover more rapidly and that he may avoid a future breakdown. Knowledge of the disease gives one a feeling of safety, and safety means happiness. A person who has been tuberculous and is well informed on the subject is not often worried about his future. He knows how to avoid trouble, he feels safe, and, as a consequence, is more likely to live a normal and happy life. Patients, taking a rest cure, should learn tuberculosis—learn it well! Traveling about in the dark is an unsafe way to get through life.

Persons with supposedly imaginary troubles are commonly advised to "forget it." Such advice is dangerous. The great evil resulting from the indiscriminate use of the expression—forget it—is that the patient often has at the time not only a serious but actually a fatal disease that the doctor has not discovered.

After a tuberculous patient has taken a rest cure and has gone back to work, his mind begins to build up a barrier to exclude the disagreeable parts of his recent experience. This is normal. Only morbid minds and chronic sympathy seekers continue to dwell on hardships, past or present. The healthy mind forgets disagreeable experiences. For this reason, persons that have been tuberculous often wilfully deny the fact after recovery from the disease. It is commendable self-deception. But they do follow the straight and narrow path, and, should evidence of what they think may be active disease reappear in them, they go at once to their medical attendant for another examination.—*Getting Well and Staying Well, John Potts, C. V. Mosby Co.*

Instructing the Patient

The ultimate result in pulmonary tuberculosis depends directly on the patient's application of the knowledge he has acquired about what he should and should not do. Education of the tuberculous patient closely resembles psycho-therapy. In a preliminary talk, Brown tells the patient a few fundamental principles. He describes the pathology, using homely similes comparing the newly formed scar tissue, for example, to a delicate spider web which may easily be stretched or broken by the patient's indiscretion and so permit tubercle bacilli to migrate to new areas of the lung. He does not peremtorily order the patient to bed but puts the whole problem before him so that the patient himself elects to go to bed. While in this state of mind, the patient is receptive to all sensible suggestions. The role played by rest, fresh air and nutrition are then explained to him. At each visit, he is given additional information. Questions are jotted down when they occur to him and are discussed with the doctor at the next visit. The care needed to recover and to prevent future breakdown becomes a part of the patient's subconsciousness.

Mention of complications is taboo until they actually occur. Physical findings are not discussed with the patient except that certain sounds heard in the chest are called "green lights" meaning "go slow" or "red lights" meaning "lay off in the side track for a while." Occupational therapy (when bed rest is no longer required) is a God-send. Idle patients are tempted to do foolish things.

After the training in the sanatorium or by a private physician, the patient passes on into the university of life, there to solve his own problems with the aid of occasional advice from his physician.—*Instructing the Tuberculosis Patient to Assure Permanency of Recovery, Lawrason Brown, Jour. of the Out. Life, March, 1928.*

NO LESS important than the teaching and training of the patient are the social obligations which a physician automatically assumes with each case. Tuberculosis is a contagious disease. Members of the patient's family, as well as the general public, are entitled to that protection which the social and public health machinery designed for that purpose is supposed to provide. These protective devices cannot, however, function efficiently without the full cooperation of the physician.

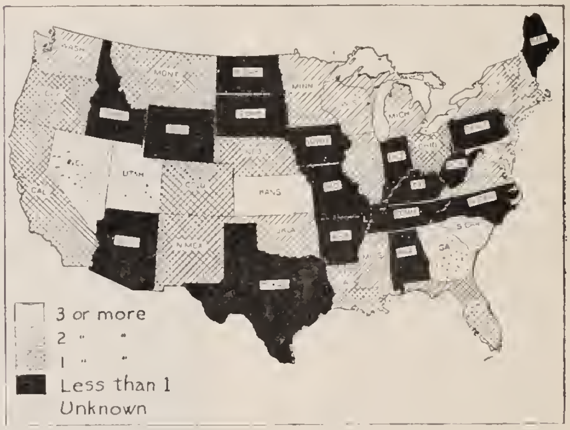
New York State Experience

In New York State, 7,762 cases of tuberculosis were reported to the health department in 1927. Of these, 3,625, or 47%, were reported by 114 tuberculosis specialists, while 4,137, or 53%, were reported by 6,675 general practitioners. Of the cases reported by specialists, 4.5% were reported *after death*, and of those reported by general practitioners, 17% *after death*.

Of the cases of pulmonary tuberculosis reported by specialists, 25.7% were designated as minimal, as against 15% minimal reported by general practitioners.—*Special Report: Division of Tuberculosis, N. Y. State Dept. of Health.*

Prompt Reporting Necessary

Nearly 12% of tuberculosis cases reported by physicians to the Board of Health of Boston were reported after death. Another 12% were reported only one week before death. Of the cases reported during November, 1927, one-half had been reported within a month of death. "There is only one conclusion to be drawn from these figures and that is that there is a serious delay in reporting cases of this disease."—*Editorial, Boston Med. and Surg. Jour., February 9. 1928.*



Ratio of cases of tuberculosis reported to deaths from tuberculosis, according to states. *Compiled by Dr. Robt. E. Plunkett, N. Y. Dept. of Health.*

Books for the Patient

Lawrason Brown: Rules for Recovery from Pulmonary Tuberculosis, Lea & Febiger, 217 pp.

John Potts: Getting Well and Staying Well, C. V. Mosby Co., 150 pp.

Gerald B. Webb and Charles T. Ryder: Overcoming Tuberculosis, An Almanac of Recovery, P. B. Hoeber, 198 pp.

A more complete list of books on tuberculosis for laymen, as well as booklets and leaflets, may be secured from your tuberculosis association or from the National Tuberculosis Association, 370 Seventh Avenue, New York City.

KENTUCKY MEDICAL JOURNAL TUBERCULOSIS SUPPLEMENT

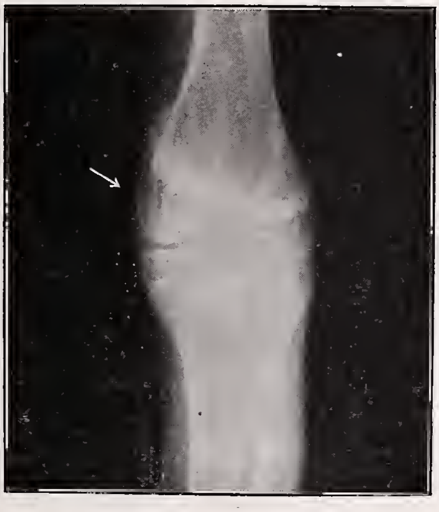
Edited by the
KENTUCKY TUBERCULOSIS ASSOCIATION

Vol. XXVI November, 1928 Number 11

WHEN tuberculosis attacks the bones and joints of the child, its devastating effects are unusually cruel. Insidiously and surely, this enemy slows up the child's joyous activity, mars the grace and beauty of its movements, and finally cripples the lithe young body beyond repair. Who can resist the pathos of a Tiny Tim! But a better day dawns. The incidence of bone and joint tuberculosis is undoubtedly lessening. How much credit for this is due to the better production and pasteurization of milk is not altogether apparent, but surely it is considerable. However, in this country, by far the larger proportion of cases have been caused by the human type of tubercle bacillus. Moreover, methods of treatment are more effective. Surgery, valuable but no longer the sole reliance, is now being supplemented by general treatment in open air institutions, by heliotherapy and other means. Rollier has given us an entirely new conception of methods of treatment and Humphries states: "In cases of surgical tuberculosis, it is difficult to restrain one's enthusiasm when speaking of heliotherapy or to refrain from quoting cases which would read as do the miracles." Tuberculosis of the joints and bones is still common and serious enough to warrant the most careful attention of every practitioner. Best results in treatment are attained through the cooperation of the physician and the surgeon. The various forms of light therapy are not to be applied hit or miss. They can work harm, and should always be administered under skilled and experienced direction.

Bone Tuberculosis a Children's Disease

Tuberculosis of the joints is principally a disease of children. More than 85% of all cases, says Ritter, occur in children from two to ten years, and more than 50% at from two to five years. The disease involves the spine in about 40% of all cases, the hip in 30% and the knee in 20%. Tuberculous dactylitis, or disease of a finger joint, is not infrequent and should not be overlooked.—*Handbook of Tuberculosis for Medical Students and Practitioners of Medicine, John Ritter, M. D.*



Tuberculosis of Knee Joint.

Courtesy Maxwell Harbin, M. D., Lakeside Hospital, Cleveland, Ohio.

Pathology of Joint Tuberculosis

Bone and joint tuberculosis is secondary to tuberculosis of some other part of the body. The bone is attacked first and then the joints. The process usually starts on the joint side of the epiphyseal line. The factors responsible for this are: end arteries, poor circulation and traumatic injury.

The diseased area or focus may be encapsulated and eventually heal, or lie dormant, perhaps breaking out anew at some future time as the result of trauma. Caseation often results, and then the disease may spread to the joint through the cartilage, or to the synovial membrane. Destruction of the joint structures follows. So-called cold abscesses and fistulous tracts are formed if the disease breaks through the bones and joints. Secondary infection, especially with the staphylococcus, sometimes occurs by way of the fistulous opening and may hasten the destructive process.

There is very little attempt at new bone formation. Healing takes place by calcification, encapsulation and cicatrization. Deformities, atrophy and contractures commonly occur. — *Surgical Treatment of Tuberculosis of Bones and Joints, E. J. Cummings, M. D., Texas State Jour. of Med., Nov.,* 1927.

Detecting Joint Tuberculosis

Berkheiser stresses the important etiological causes of tuberculosis of the bones and joints as follows: Contact with active tuberculosis, especially in the home. The younger the child, the greater the liability to bone involvement. Trauma is certainly an important factor. Most of the cases occur in the joints which have the widest range of motion, while the joints which are less mobile and hence less frequently traumatized seldom become involved.

Among the prodromal signs, it is noticed that the child is inactive and not inclined to play strenuous games with the other children as heretofore. The child often develops anemia; the appetite is not good; he gradually loses weight, and this results in a drawn appearance.

The important subjective symptoms are: (a) stiffness of the joint and (b) pain on movement of the joint locally, though the greater pain is often referred along the course of the nerve to some distant point. Gradual slight change in gait, due to unconscious protection of the joint, and night cries on account of muscular relaxation are important symptoms.

The objective findings are those of a chronic synovitis, as: (a) swelling which is uniform, obliterating the bony landmarks of the joint; (b) atrophy of the adjacent muscles, due to disuse and proportional to the duration of the disease; (c) deformity in varying degrees because of the bone destruction and resulting angulation of the articular surfaces.*

The differential diagnosis is of as much importance as the essential diagnosis. All the conditions which cause pain or deformity of the hip must be ruled out, as follows:

1. Acute epiphyseitis, acute osteomyelitis, especially of the femur, and acute septic arthritis. These concurrent diseases usually occur in young individuals who have had some of the acute exanthemata; acute tonsillitis, furunculosis or sepsis in some of the other bones or joints.

2. Perthes' disease, or osteo-chrondritis deformans juvenalis, the symptoms of which are very similar to tuberculosis except that in this condition there is less stiffness, less atrophy and less tendency to deformity. The X-ray reveals that the head of the femur is flattened and later segmented, while the neck of the femur becomes broader.

3. Idiopathic coxa vara occurs usually in fat boys, who at puberty have a disturbance of the glands of internal secretion and do not develop the secondary sexual characteristics.

4. Congenital dislocation of the hip, in which there is a history of a painless limp which has been present since the child started to walk.

5. Sciatica, with its pain referred down the nerve, especially when the nerve is stretched by extending the flexed knee on the thigh which is held flexed.

6. Sacro-iliac disease, in which there is a tilting of the body away from the affected side and a limp due to the restricted motion at the hip.

7. Pott's disease of the lumbar region, with the psoas abscess which causes a flexion of the thigh and restriction of extension, while all other movements of the hip are free. With Pott's disease, there is stiffness of the back, an angular kyphosis, and X-rays reveal destruction of the bodies of the vertebrae.—*Diagnosis of Tuberculosis of the Bones and Joints, E. J. Berkheiser, M. D., Bul. of the City of Chicago Muni. Tuber. San., June,* 1925.

Modified Bradford Frame.

Courtesy Clarence L. Hyde, M. D., Springfield Lake Sanatorium, East Akron, Ohio.

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*The author is describing the later manifestations. Early symptoms are not pronounced; in fact the local changes may be so slight as to be overlooked.

KENTUCKY MEDICAL JOURNAL
TUBERCULOSIS SUPPLEMENT

Edited by the
KENTUCKY TUBERCULOSIS ASSOCIATION

Vol. XXVI December, 1928 Number 12

LIGHT is a necessity to the life and well being of the cell. Sunlight contains, in addition to heat and light, other forms of radiant energy. Heliotherapy was practiced by the ancients. Hippocrates used it in the temple of Aesculapius; Aristotle noted the effect of sunlight in producing green coloring in vegetable matter; Cicero describes the solaria which wealthy Roman citizens had constructed at their country villas; Celsus and Galen preached the salubrious effects of the sun. In 1779, Bertrand published his essay on "The Influence of Light on Living Organisms." In 1815, Loebel advised general, rather than local, insolation in cases of pulmonary tuberculosis, except in cases of hemoptysis. In the middle of the 18th century, Rickli established a clinic at Veldes, Austria, where patients were treated by insolation and fresh air with astonishing results. The discovery of the electric arc made artificial heliotherapy possible. Professor Finsen was the first scientist to practice actinotherapy by means of artificially produced rays and, in 1893, published his results of the treatment of tuberculosis (especially of the skin) by rays emitted from a carbon arc lamp, the "Finsen Light." In 1903, Rollier opened his first clinic for bone and joint diseases at Leysin, with brilliant results. The oldest of therapeutic agents has thus become one of the most modern.

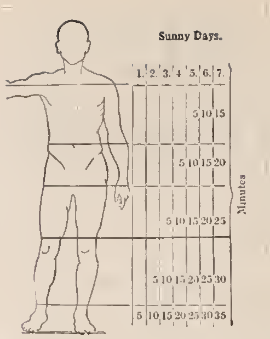
Heliotherapy

The Sun Bath

Although Rollier lays stress on the importance of his Alpine environment, it is possible to offer patients the advantage of heliotherapy almost anywhere. Certain conditions, such as clouds, inclement weather, high winds and moist atmosphere, must be met in low altitudes. To meet these contingencies, different forms of artificial light, such as the various forms of quartz-mercury and arc-lamps are used.

Rollier ascribes the beneficial therapeutic action of the sun's rays chiefly to the ultra-violet rays of the spectrum. He and his followers measure success in the individual case by the degree of the pigmentation of the skin. Although the sun's rays produce degrees of pigmentation which vary within wide limits according to the characteristics of the individual's skin, whether the benefits to be derived from light treatment in tuberculosis and other diseases stands in a definite relationship to the degree of pigmentation, is quite another matter. While pigmentation is an undeniable response of the body to treatment, it is perhaps not to be relied upon as an accurate gauge of the patient's progress toward recovery. For this, we must still look to the condition of the affected part itself, as revealed by careful examination and, in the case of bones and joints, to roentgen-ray appearance. Perhaps the alterations of the patient's blood-picture is the most reliable measure of the defense reaction. The quartz-mercury-vapor lamps produce ultra-violet rays in greater quantity than the sun itself, and in these lamps the heat or infra-red rays are almost entirely lacking. By the use of these lamps, on repeated exposure, an erythema may be obtained, which becomes continuous, and the skin becomes darker than before. It is spoken of frequently as pigmentation; but it is not the deep brown which the sun's rays produce in most skins. In patients who have acquired a deep tanning from exposure to the sun, it is not possible by means of the quartz lamp to prevent this pigmentation from fading away, nor is it possible in this manner to maintain the general improvement obtained from exposures to the sun. Ultra-violet rays alone are not a fair substitute for the rays of the sun in surgical tuberculosis.

It is not possible to show, at present, that ultra-violet rays of artificial production have marked curative value in the treatment of tuberculosis of bones and joints. The action of the quartz lamp is superficial, and it is an unsatisfactory substitute for sunlight. The impression that the contrary is true as a result of which the more special orthopedic management of these cases is being omitted, is unfortunate and a calamity for many a patient.



Diagrammatic Course of Sun Cure as Suggested by Rollier

The rejection of the quartz lamp as a satisfactory substitute for the sun is not to be accepted as a gesture of despair. Kisch, of Berlin, believes that the most important element of the solar light is to be found in the heat rays in the red and infra-red portions of the spectrum. He is convinced that their activity stands in direct relationship to the surface temperature produced, and that this must approximate that which is produced by the sun itself. However, it does not seem justifiable to ascribe the virtues of sunlight altogether to either ultra-violet rays or to heat, nor is either an acceptable or practical substitute.

Heliotherapy may be a marvelous addition to our resources, but it works no miracles; it brings to our aid no biological resources of unprecedented character; it produces no new cartilage; it makes the process of cicatrization no less necessary than hitherto. At the same time, by its beneficial action, cicatrization is made more sure and rapid. The wise application of such a well-established surgical procedure as immobilization through fixation is just as important as ever. With all its limitations, heliotherapy is a great addition to our resources, particularly in the tuberculous bone diseases of children.—*Heliotherapy at Low Altitudes, A. H. Frieberg, Jour. of A. M. A., March 13, 1926, lxxxvi, 731.*

Technique of The Sun Bath

After preliminary hardening and observation, if the patient's condition warrants it, the sun bath is begun. This is given with the patient in the recumbent position and not sooner than one hour, or better, two hours after the meal, and should be discontinued at least one-half hour to one hour before the meal.

The first day, the feet are exposed for five minutes, then covered ten or fifteen minutes and another exposure for five minutes is given; covered again for ten, and exposed again for five. This is done front and back.

The second day, the feet are exposed for ten minutes and the knees for five; covered and uncovered three times front and back.

The third day, the feet are exposed fifteen minutes, the knees for ten minutes and the thighs for five; covered and uncovered three times, front and back.

The fourth day, five minutes' exposure is added to the feet, knees, and thighs, and the abdomen is given five minutes.

The fifth day, the previously exposed parts are given an additional five minutes' exposure and the chest is given five for the first time.

Each day, a five-minute increase is given until the whole body is able to tolerate three or four hours daily of sun cure without burning. The progressive exposure is carried on to ascertain the patient's tolerance and to obtain pigmentation without burning. If, for any reason, the sun cure has to be interrupted during the preliminary exposure, the time of the next bath should be reduced to an earlier stage, the stage depending on the degree of interference.

Great care should be taken during the early exposures to avoid burning and to watch at all times for unfavorable symptoms, such as a rapid pulse, rise of temperature, headache, nausea, fatigue, dizziness, or other constitutional disturbance, which might indicate an intolerance to the sun or an exacerbation of the disease.

The baths are always given the same way without regard to the location of the lesion. The lesions should be kept covered until the patient has been able to take one or two hours of cure without any reaction. When the lesion is exposed, it should be started at five minutes the first day, with five minute increases each day thereafter.

In the case of feeble patients or of those who do not tan well, or in cases where there is considerable fever, it may be necessary to reduce the time of daily exposure and to give only two or three minute increases daily. If any dermatitis or burning occurs, the treatment should be discontinued for two or three days. Sometimes, it is necessary to wait for a week or ten days.—*Heliotherapy in Tuberculosis, C. L. Hyde, M.D., Ohio State Med. Jour., Dec. 1, 1925.*

"A child with a tuberculous hip might be made a chronic invalid if light alone is given; whereas, if he is placed in proper orthopedic rest, with good food, fresh air and proper light treatment, usually he can be cured, sometimes with full function of the joint restored."

The New York Academy of Medicine

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